FEBRUARY 12, 1944

FEB 16 1944

Railway Age

Founded in 1856

THE BIRTH *of the* STREAMLINER

•

1944 marks the 10th anniversary of America's first streamliner. It was built by

PULLMAN-STANDARD CAR MANUFACTURING COMPANY

and delivered on February 12th, 1934, marking the beginning of a new era in American railroading

See pages 13 to 25 for the story of this revolutionary contribution that has influenced the building of all modern railroad equipment.

In the past ten years, up to the stoppage enforced by the War Production Board, 2116 lightweight passenger cars were built by the car-building industry. Of those, *1505—or almost three-fourths of the total—were built by Pullman-Standard.*

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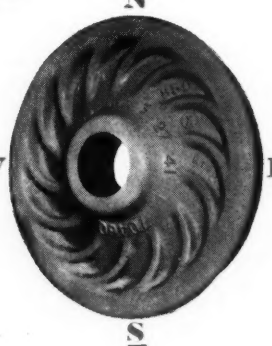
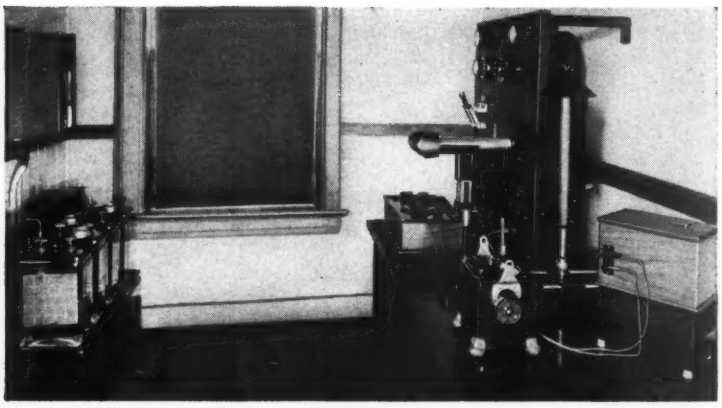
ALL A.M.C.C.W. TEMPERATURE CONTROLS ARE *Centrally Tested*



Uniform processing temperatures during the manufacture of Chilled Car Wheels are assured by having all pyrometric control equipment periodically tested, repaired and calibrated at *one central Association laboratory*. Through this procedure, all pyrometric apparatus used in the many foundries of the Association is calibrated to the same standards — with resultant uniformity of product. As a further safeguard to accurate temperature measurement, the Association also manufactures and distributes all the thermo-couples used by member foundries.

In addition to periodic central laboratory testing, all instruments are checked on the spot by Association inspectors during general inspection of the foundry.

Assured temperature control is but one of numerous precautions constantly guarding the uniformity of Chilled Car Wheels.



Part of the equipment used in testing pyrometric controls at the Central A.M.C.C.W. laboratory.

ASSOCIATION OF MANUFACTURERS OF CHILLED CAR WHEELS

AMCCW

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How Long Can a Rail Be? ***340***

Little information hitherto has been made available concerning the service which continuously-welded rail has given, although it has been used on some roads in open-track for more than 10 years, and in tunnels for even longer. This article discloses the attitude of maintenance officers who have observed it in actual performance.

Making Friends With the Public ***348***

The state of public opinion is as much a factor in railroad earnings as is the degree of efficiency of the property's operation—and hence, just as proper a concern of management. In this article, Samuel O. Dunn cites figures which suggest—while great progress has been made in improving public relations—the effort, attention and skill thus far devoted to this task has not been adequate to the job which needs doing.

Train Telephone Communication ***352***

It is believed that this installation on the Pennsylvania represents a long step forward in the search for a practicable means of communication between head and rear of trains, and between trains and wayside stations. W. R. Triem, general superintendent of telegraph for the railroad, herein describes the innovation and tells how it works.

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The Railway Age is indexed by the Industrial Arts Index and also by the Engineering Index Service

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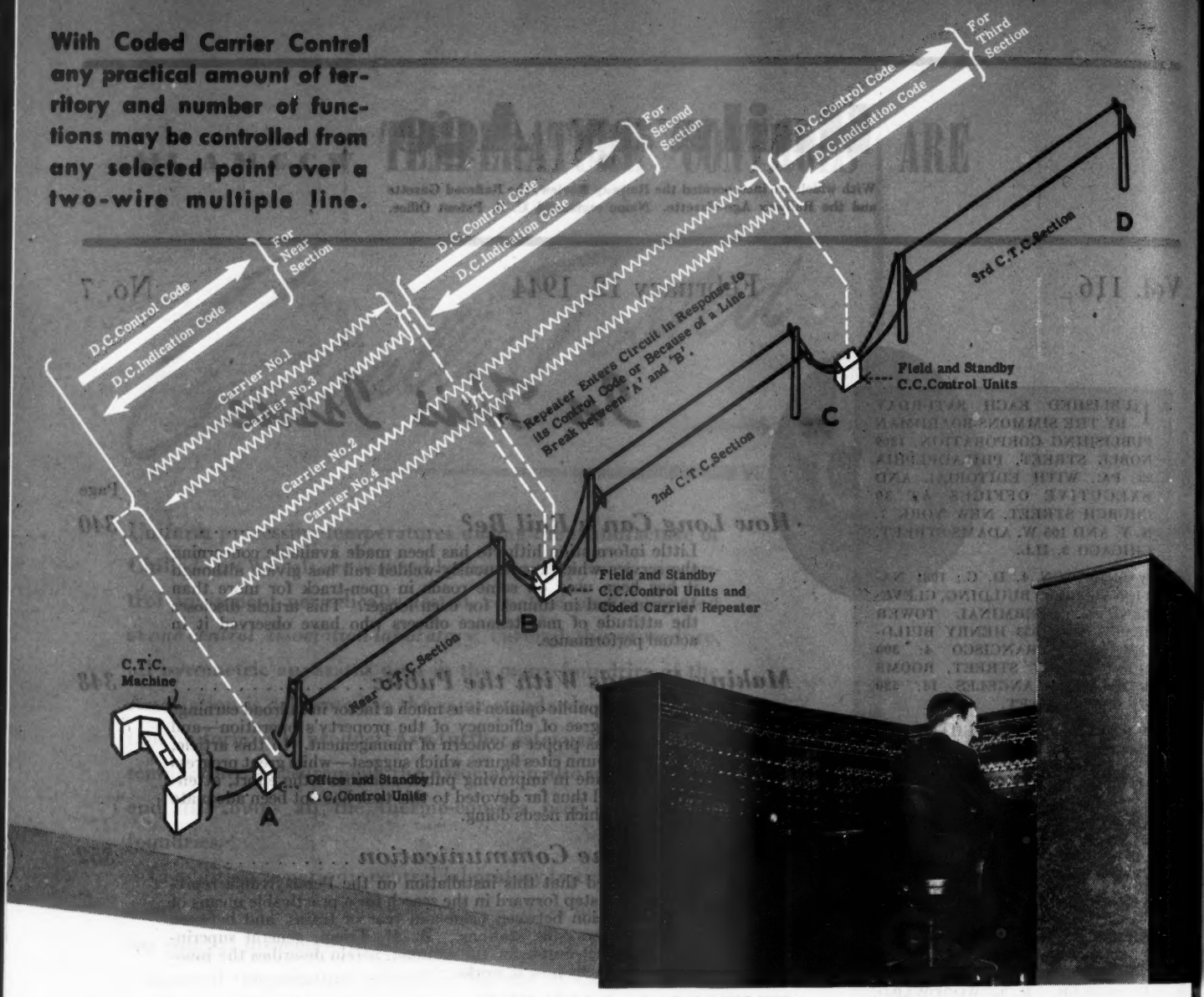
With Coded Carrier Control any practical amount of territory and number of functions may be controlled from any selected point over a two-wire multiple line.



Many miles of line wire saved with C. C. CONTROL!

"Union" C. C. Control Unit

NEED for increased rail transportation capacity has stimulated the use of Centralized Traffic Control which permits more effective use of existing facilities. The length of some installations and restrictions on supplies of some materials have greatly accelerated the adoption of Coded Carrier Control for these systems. The first field test was made on February 11, 1942 . . . the first installation was placed in operation on June 4, 1942 . . . to date 10 C.T.C. sections with C.C. Control are in actual service . . . and 14 additional sections are under construction. These installations of C.C. Control will save many miles of critical line wire and will furnish important increases in facility.

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The Week at a Glance

MAKING PEOPLE FRIENDLY: The factors which determine whether the public will like or dislike a railroad (or the entire industry) are closely examined on page 351 herein in an article by Samuel O. Dunn, and in a review in our news pages of a report on this subject by the Railroad Committee for the Study of Transportation. The primary responsibility of the chief executive for the success or failure of a railroad in its relations with the public —is the central theme of the committee report; while Mr. Dunn lays special emphasis on the necessity for active public support in achieving adequate earnings and sound credit. From the present state of the latter he concludes that, while efforts to gain public favor have been greatly and intelligently intensified in recent years, quantitative results demonstrate that they have as yet by no means attained a force adequate to the need.

●

IS LONG RAIL A SUCCESS?: Inquiry among railroads which have had extended experience with continuously-welded rail reveals that this innovation reduces track maintenance costs (estimated saving up to 25 per cent); that, properly anchored, expansion and contraction presents no difficulty; that track rides more smoothly and is kept that way with less effort; that long rails will probably outlast short lengths (except on curves); that they are easier on ties and, probably, on rolling stock too. Among possible deterrents to their use are the initial cost, the difficulty of replacement, and the necessity for mobilizing considerable equipment for handling such rail lengths. Further results of this investigation are reported in an article in this issue.

●

JOE'S SILVER JUBILEE: With a quarter of a century of service on the Interstate Commerce Commission behind him—and at least seven more years ahead, as the result of a recent reappointment—Joe Eastman will be on the receiving end when compliments are handed out at a standing-room-only testimonial dinner being given him in Washington next Thursday by the I. C. C. practitioners. An item in our news pages names the speakers, whose talents will challenge the guest of honor to "defend himself."

●

YEAR'S ACCIDENTS: Reflecting, among other things, the continued increase in traffic, there were 2,695 more train accidents last year than in 1942, and the number of passengers killed in such accidents jumped from 38 to 205, according to figures just released by the I.C.C. and tabulated in this issue. The number of passengers injured in such accidents was more than double the 1942 total, while fatalities to employees on duty showed only a slight increase—from 9.41 to 988. Conforming, perhaps, to enforced curtailment of highway traffic, grade crossing fatalities were fewer in 1943 than the year before.

●

NOT SHARING THE CREAM: Purportedly because they already operate on the ground, railroads and other forms of surface transportation won't be allowed to enter the non-competitive preserves of the already-entrenched air line operators—that is, if the gentlemen regulating the airways accept the advice of their examiners, which seems to express the very philosophy of aeronautical regulation the administrators have already espoused. But when it comes to "feeder" services reaching small towns—where the pickings naturally are slim—they are not so determined that the atmosphere be kept exclusive to the hand-picked few, an account in this week's news pages reveals. In some aviation circles, governmental as well as commercial, the term "surface carrier" is taking on the attributes of an epithet.

●

BUREAUCRATS WASTE CARS: The country is shorter on transportation than it is on wheat, and using scarce cars to haul it from Canada, when there is already more of it than can now be moved in American elevators, nearer the point of consumption—such use of a scarce article to increase the supply of something far less scarce "is a criminal waste that we will regret." This is how Commissioner Johnson feels about sending 200 cars a day to Canada to fetch wheat back—and, as is revealed in our news pages, the War Food Administration has reluctantly agreed to re-examine the situation in the light of such reasoning. Senator Reed looks on representatives of the W. F. A. as "the slipperiest bunch of gents" he ever had to deal with.

●

DEMAGOGUE'S PROGRESS: The peculiar personage whom chance strangely chose for the nation's Vice-President is obviously not disturbed at the derision which his "argumentum ad populum" speeches has called forth from that small-voiced minority of citizens who are encumbered with a few historical facts and a modest endowment of logic—because the pietistic placeholder persists in his reckless rhetoric. "Fascists" is what he now calls those whom he finds friendly to "Wall street"—i.e., the place and process by which industry is financed by private enterprise rather than from public funds. Some of Wallace's irresponsible statements regarding railroads were punctured in a speech this week by Congressman Kunkel (reported in our news pages).

●

MORE CARS: An A. A. R. member road meeting in Chicago last week was told that the opinion prevails in some quarters in Washington that orders for cars ought to be coming in faster, now that steel is more plentiful. Discussion developed that a more realistic attitude on the part of some of officialdom's watchdogs toward such considerations as amortization provisions and, in the case of passenger cars, availability of air conditioning equipment, might loosen the alleged log jam. As the account in our news columns discloses, this exchange of views quickly resulted in steps being taken that may make it possible for the roads to get the kind of cars they seek under not too improvident conditions.

TRUCK RATES ON RR BASIS: Truck operators sought to establish a rate lower for a 30,000-lb. minimum (based on the railroad carload) than for a 20,000-lb. minimum (based on a truckload) and the I. C. C. held such rate-making unreasonable and unduly discriminatory, in the light of truck loading characteristics. The Supreme Court, however, is not satisfied with the evidence on which the Commission arrived at this conclusion, and has sent the case back for more facts with which to indulge its curiosity on this point.

●

PHONES ON MOVING TRAINS: A system of telephonic communication between the head and rear end of trains, between adjacent trains, and between trains and wayside stations is getting a thorough test on a branch line of the Pennsylvania, and the installation is described in an article herein by the P.R.R.'s general superintendent of telegraph, W. R. Triem. The system used ingeniously combines the techniques of both radio and wire telephony.

●

EQUALITY BEFORE THE LAW: In days long ago, before Britannia had given slow and painful birth to popular liberty, there was one law for the nobility and a harsher one for the commoners. Doubtless now in Nazidom, an Elite Guard may do things with impunity which would bring imprisonment to a common citizen or death to a Jew. In the United States a railway may not, as a practical matter, cease its work rather than abide by an emergency board decision—but a union may, and does, do so with perfect impunity. The leading editorial herein suggests that defense of our ancient liberties at home is, perhaps, equal in importance to opposing their enemies on distant shores.

●

NOT IN THE LODGE: Two members of the House interstate commerce committee appear to be unable to join in the majority's repetition of the stereotyped encomium of the Railway Labor Act's contribution to what are called satisfactory settlements of wage controversies. And after these non-conformers had pointed out specifically how the machinery set up under the act didn't work in the two most recent disputes, they had something to say, as reported in the news pages herein, about the wisdom of the proposal to let emergency boards, unanointed by senatorial confirmation, have a hand in operations on that sacred cow, the stabilization formula.

●

RAILROADS AFTER THE WAR: The chairman of the Railroad Committee for the Study of Transportation (Judge Fletcher) this week told the House committee on post-war plans that the after-conflict outlook for the railroads is favorable, provided the legislators will treat all agencies of transportation with some degree of equality as to regulation and support from the public treasury. To this end, he expressed the opinion that all transportation should be brought under the jurisdiction of a single regulatory agency. Mr. Fletcher's views are set forth in further detail in our news pages.

What's the Answer
LETTERS
Fireproof Construction
What special practices have you adopted within recent years to prevent the damage to signaling facilities which might be caused by fire?
Safe Distance
A. M. GILBERT
of Signals, New York Central System, Cincinnati
In a number of instances in signal towers or depots, fire protection may be increased for signal apparatus by installing concrete housing for relays, batteries, etc. The housing should be set a safe distance from the signal tower or depot in order that the heat from a fire would not damage the housing or apparatus.
We are installing housings of the sectional type, each part being small enough that they can be handled by hand, which eliminates the use of a work train or machinery
Plywood is used
relay mounting boards and is usually made of ¾-in. yellow pine. The housings are equipped with ventilators which create a draft of air to prevent sweating.
With this arrangement, a fire may destroy a tower or depot and not the relays, etc., in which instance the interlocking or signal apparatus can quickly be restored to service. Should a fire occur in the wiring of the relay house, caused by lightning or overloading of the circuits, the control machine and building would not be in danger. We have had several fires that could have been prevented had fireproof housing been provided for the apparatus.
To Be Answered in a Later
(1) What are and disadvantag track circuits, a plicated track electrified te
(2) W freight te way in ex fic control advantages excluding the minal territori territory? Wh apply in the mediate term
(3) What tion do s bonds
Taken from a recent issue of "Railway Signaling".
and OKOLITE-OKOPRENE
Wiring!

Sure, safe distances and fireproof housings for signal apparatus are both worthwhile precautions against the spread of fire. But why not go all the way?

Don't overlook the fact that wiring itself may communicate fire from one location to another if insulation and sheathing are of a flammable nature.

So play safe, and make your vital signal apparatus really fireproof — by using *flame-resistant* Okolite-Okoprene wires and cables. Insulated with oil-base Okolite insulation and protected by a sheath of Okoprene, these wires resist *flame*, *oil*, *moisture*, *ozone*, *sunlight* and *chemicals*.

They are manufactured in all sizes and capacities for railroad applications, and can be furnished in many colors for circuit identification. Further information in Bulletins OK-2009C and OK-2036. The Okonite Company, Passaic, New Jersey.

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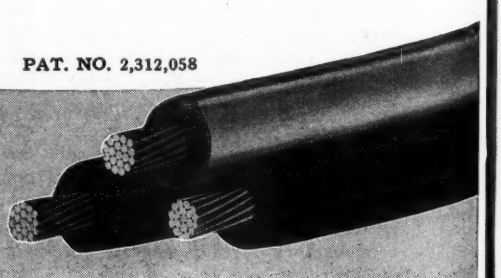


RAILWAY AGE

Freedom from Dictators, Abroad And at Home

Why spend our blood and treasure in a world war to suppress exploitation by force in international affairs, and encourage exploitation by force in our domestic affairs? Two government-appointed boards held in 1943 that $243 million annually was the largest advance in the wages of railway employees that could be made under the Stabilization Act passed by Congress to prevent inflation. By ordering a strike in the midst of war, the railway unions got an increase of $360 million.

This was exploitation of the people who must finally pay the bill. And it was exploitation by force. For a strike could have been made effective only because the unions had monopoly power to cause virtually all railway employees to quit work, and the power of picketing to prevent employees disposed to work from doing so. Strikes are always backed by picketing; and picketing, if necessary to make it effective, is always backed by violence. Therefore, important strikes are a form of threatened or actual civil war having much the same purposes as threatened or actual international wars; and it is because these things are true that labor unions so strongly insist upon retaining the right to strike even in time of war.

Efficiency FOR VICTORY

The Railway Labor Act provides for collective bargaining, mediation, arbitration and appointment by the President of emergency boards to make findings of fact and recommendations. If the parties to a dispute agree to arbitrate, the decision of the arbitration board is legally binding; but the recommendations of an emergency board are not binding. Therefore, it has become standard practice for the railways to accept and the unions to reject arbitration, and for the railways to accept the recommendations of emergency boards and the unions to reject them and, by threatening to strike, to get more than the boards recommend.

This so-called "peaceful settlement of disputes" is "peaceful" only in the sense that grabbing of the territory of a small nation by a large nation by a threat of war is peaceful. The railways would not be allowed by public sentiment or law to enforce a reduction of wages by agreeing to discontinue operation. But the unions, to prevent a reduction or compel an advance of wages, can, by use of their monopoly power, stop operation. This difference between the rights of the parties in the courts of public sentiment and of law gives the unions an obvious coercive power of exploitation. And such power of exploitation by any group is sure to be so used that it will unbalance the nation's economic system and make impossible in peacetime the largest production and employment of which the nation's economic system is potentially capable.

There is apparently no remedy excepting use of the power of government to deprive all private groups of the monopoly power of exploitation. The railway labor unions could be deprived of this power by an amendment of the Railway Labor Act requiring either (1) settlement by arbitration of all disputes not settled by collective bargaining or mediation, or (2) acceptance by both sides of the recommendations of emergency fact-finding boards appointed by the President.

To thus prohibit strikes would, it will be claimed, abridge freedom. But when a large majority of the people are subject to dictation by minority groups, the majority subject to the dictation are, to that

extent, not free. And that is precisely the situation which now exists. When labor unions, by use of the power of legally uncontrolled monopoly, dictate the wages that railways and other industries must pay, they thereby dictate the prices and freight rates that the public must pay. Which kind of freedom at home, then, is more like the kind of freedom for which we are fighting abroad—freedom of labor unions to dictate to the two-thirds or three-fourths of our people that they do not represent, or freedom of this two-thirds to three-fourths from labor-union dictation?

Proper Flagging Supplies

Recent accidents have shown the necessity for the utmost care in checking proper flagging methods and, more particularly, the need for supervision of flagging equipment to see that such equipment is available in the proper place at all times. The checking of flagging equipment on cabooses is almost automatic, as there is such frequent need for it that it is constantly in the minds of the officers and the men. The fact that flagging from the engine is nowhere nearly as frequent as flagging from the caboose may cause men to become careless in checking engine supplies; but when, as now, there are so many new men in crews, it is more important than ever for supervisors to check such details.

Different railways have adopted various systems for checking flagging equipment on locomotives. The one used on the Missouri Pacific has been in effect for a number of years, and assures proper flagging supplies at all times. On this railroad, the engine supply man makes a report of each item put on each locomotive daily, copies of this report going to the master mechanic and to the division superintendent. A further check is supplied by the requirement that the road foreman of engines shall inspect at least 100 locomotives per month to see that proper flagging supplies are available.

In addition, every trainmaster is required to inspect at least one locomotive per day on the road for the same purpose, while the master mechanic must inspect at least one locomotive per day at the enginehouse before it goes out on its run. The division superintendent is also required to inspect 10 locomotives per month with the same purpose in view. All of these officers must send reports of such inspections to the chief operating officer. Thus all of the locomotives on the division are inspected by supervisory officers at least once every two months, and usually the interval is shorter, depending upon the number of trainmasters on the division.

So much checking might seem burdensome and perhaps unnecessary. But when the possible cost in money and lives of a single accident is considered, it is obvious that it is well worth while to make these periodic checks. For avoiding accidents, there can hardly be too much checking or supervision.

Work Equipment to Offset Labor Shortage

The railroads, in their search for labor, have long been scraping the bottom of the barrel—especially in the supply of unskilled labor. While many of the Selective Service boards have been sympathetic toward requests for the deferment of skilled or technical railroad men, requests for the deferment of unskilled laborers have generally gone unheeded.

In the face of this situation, Director Joseph B. Eastman, of the O. D. T., Interstate Commerce Commissioner J. Monroe Johnson, President J. J. Pelley of the A. A. R. and others are making every endeavor to impress upon public authorities the seriousness of this condition. In the meantime, the railways must continue to search everywhere for more help and to endeavor to get the most out of the labor that they can obtain.

There are a number of ways in which labor can be utilized with maximum effectiveness. One is to do only that work which is absolutely essential. Another is the extension of the working day to 9 and 10 hours, the latter being about the limit of effectiveness of this method. Another expedient is increased and better supervision and, toward this end, a number of roads (notably the Erie) have inaugurated elaborate training programs for supervisors. Still another method is the improvement of working conditions. The latter two methods also tend to reduce labor turnover.

One other method of utilizing labor to the utmost is the greater use of work equipment. During the last year, it was difficult for the railways to secure additional units of work equipment because of severe wartime restrictions on the materials incorporated in them. Nevertheless, despite these restrictions, more such equipment was purchased than in any previous year in railroad history. This year, in view of an easier situation in nearly all materials except certain classes of lumber, the prospects are that a markedly greater volume of such equipment will be purchased. One large railway system which made extensive work equipment purchases last year, plans to order three times as much in 1944. The purpose of these orders is two-fold; first, the equipment will save the railroad money in carrying out maintenance of way work, and secondly, it will enable this road to do more and better work with the labor available. Under existing conditions, the latter objective is the most important.

Those maintenance officers who were not able to complete all of their work programs in 1943, would do well to consider seriously the purchase of additional units of work equipment for the purpose of getting more output from such labor as they will have this year. Furthermore, if such purchases are contemplated, orders should be placed as soon as possible to enable the manufacturer to supply the equipment before the working season has passed. It

is already "later than you think" for ordering work equipment, if maximum benefit is to be derived from it in 1944.

Boiler Explosions

In discussing locomotive boiler failures due to low water J. E. Bjorkholm, superintendent motive power, C. M. St. P. & P., pointed out in the *Railway Age* of December 18, 1943, that after everything has been done to keep the boiler in the best possible condition, "crown sheet failures can only be prevented by enginemen always being on the alert in observing the water level." Individual railroads are adopting different methods to impress the supervisors and employees with their responsibilities in this respect. The difficulty is to present the facts concisely and in such a way as to arrest the attention of the employees.

The Lehigh Valley has recently distributed to enginemen, firemen, hostlers, engine preparers, etc., a small cardboard folder that can easily be slipped into a side pocket. In bold face print it outlines the causes of locomotive boiler explosions. It points out that 98 per cent of the crown sheet failures are due to low water, all of which can be prevented by careful regard to the following instructions:

1. Never let the water get below the bottom of the water glass or the bottom gauge cock.
2. Immediately put injector and pump to work at full capacity if for any reason the water does get below the level of the water glass and bottom gauge cock.
3. Dampen fire immediately, using sprinkling hose, if water does not return to water glass and gauge cocks after injector and pumps are started to work. Start dumping fire immediately after using sprinkling hose, if water has not returned to water glass and gauge cocks.
4. Test water glass, water column, gauge cocks, injector and pump before leaving terminal and at frequent intervals between terminals. To test water glass, open drain cock, shut top valve, let blow approximately 30 seconds. Shut bottom valve, open top valve, let blow approximately 30 seconds. Open bottom valve, shut drain valve and water should return to glass immediately. To test water column, open drain cock and let water and steam blow approximately 30 seconds. Shut drain cock and water should return promptly.
5. Use blow-off cocks in accordance with standard instructions.
6. Make proper inspection of firebox sheets before leaving and after arriving at terminals; reporting any defects to proper authorities.
7. When reaching top of grades have sufficient water to protect crown sheet before starting down grade, as water level drops when throttle opening is reduced. Also water in boiler surges ahead in starting down grade, reducing the amount of water covering crown sheets.

The problem is aggravated at this time by the heavy duty to which the locomotives are being subjected and the difficulties involved in maintaining them. The seriousness of the situation is emphasized in the annual report of the I. C. C. Bureau of Locomotive Inspection for the year ended June 30, 1943. It indicates that there was a considerable increase in boiler explosion accidents over the preceding year; twenty-two of the total of twenty-five were caused by overheated crown sheets, due to low water.

America Needs More Steel Scrap

Although several factors indicate an easier situation with respect to scrap iron and steel during 1944, we are not yet "out of the woods" by any means. On the one hand, consumers' scrap inventories are slightly higher than a year ago, blast furnace capacity for the production of pig iron has increased substantially, and some sources expect a downward trend in steel production. On the other hand, carbon steel remains the controlling factor in production for both the war and home fronts. Edwin C. Barringer, president of the Institute of Scrap Iron & Steel, Inc., while addressing a recent meeting of the institute at Cleveland, pointed to a bare nine-weeks' supply of purchased scrap, a backlog of two-weeks' requirements of home scrap, and a ten-days' stock of pig iron, as proof that the margin for national safety is none too large.

In assuming that the consumption of purchased scrap will be off 4,000,000 tons in 1944, the W. P. B. apparently has eased its emphasis slightly on the collection of dormant industrial steel scrap and transferred that emphasis to its drive for waste paper, another important item that is now in great demand. While the action of a few large steel mills in stepping out of the scrap steel market in December reflected the improved situation, some of these have already reentered the market to a limited extent, and others are expected to do so in February. Moreover, the demand for No. 1 heavy melting and cast steel scrap is still heavy.

The railways produced 2,429,404 gross tons of iron and steel scrap, or almost 27 per cent of the 9,009,691 tons total reported by railway and manufacturing plants, during the first ten months of 1943. No. 1 heavy melting steel scrap produced by the railways accounted for almost 21 per cent of their total production.

At the present writing, it is believed that scrap stock will be sufficient to sustain steel mill production during the remainder of the winter. So far, weather conditions have favored winter scrap collection; but February and March may reverse the situation. In any event, this is no time to relinquish the all-out efforts that railways have developed to maintain a steady flow of scrap. Steel is still the backbone of war, and we cannot afford to let our fighting forces down.

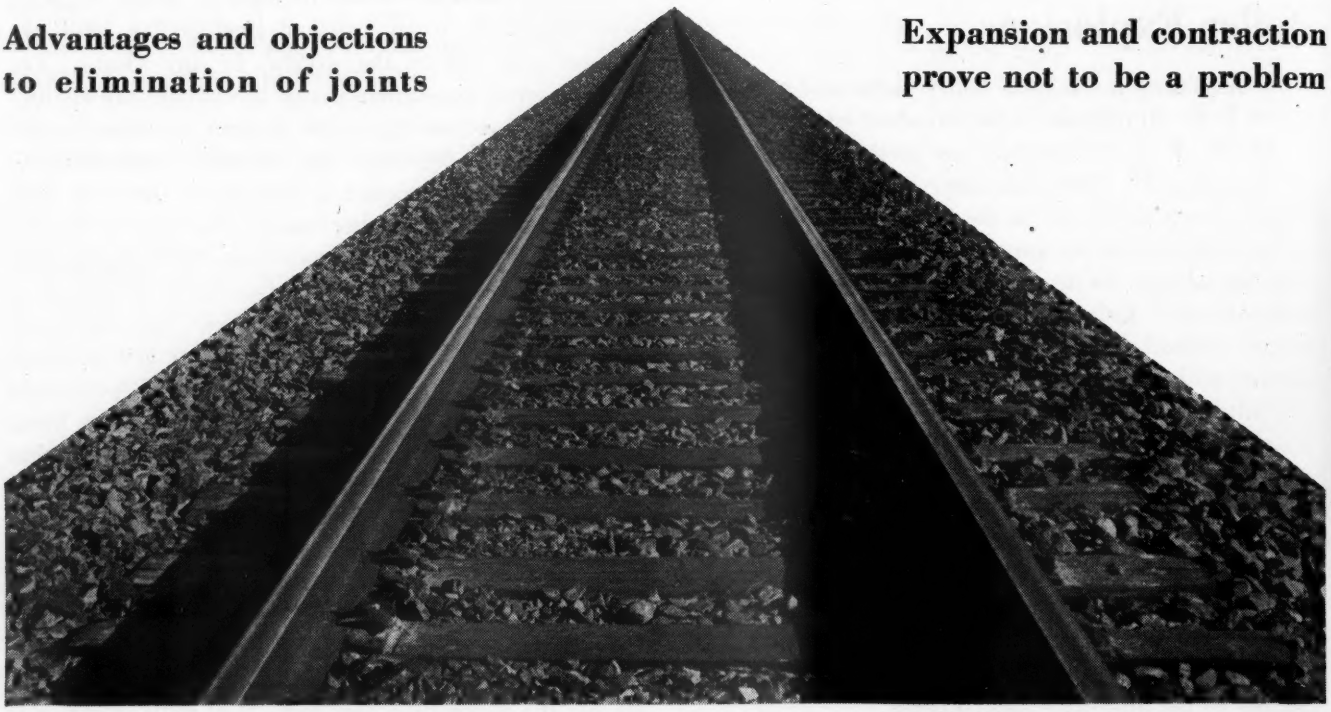
One of the fundamental rules of railroading may well be applied in this instance: "In case of doubt or uncertainty, the safe course must be taken." Results from the second railway scrap drive have been encouraging.

Following an alarming decline in production from last April's peak to the low of last August, scrap collection again surged upward during the fall until the November total practically equalled the April record. But steel mills cannot operate on past records. America needs every available ton of *extra* scrap now.

How Long Can a Rail Be?

Advantages and objections to elimination of joints

Expansion and contraction prove not to be a problem



One of the Numerous Installations of Continuously-Welded Rails on the Delaware & Hudson. These Rails Are 6,983 Ft. Long

How the Long Rail Has Performed

Continuously-welded rail has now been in service in open track in this country for a little more than a decade, and for a longer period in tunnels. All of this rail has been under observation by the roads that have installed it and by the Rail committee of the A. R. E. A. Numerous articles have described the manner of welding and the details of installation, but little information has been made available concerning the service the rail has given.

This article discloses the details of maintenance and performance and the attitude toward long welded rails of the maintenance officers of the roads that have installations.

WHAT happens when rails are welded into long strings and laid in the track? Is welded rail more difficult or less difficult to maintain? Does it give trouble from expansion and contraction? What is the probable life of such rail? Should the length of welded rail be limited? Is it feasible to weld rail as a general practice? These and other questions have been in the minds of maintenance officers, as is indicated by the many discussions of continuous welded rail that have taken place at conventions and elsewhere. Yet, in large part, they have remained unanswered, primarily because the welding of rail into long lengths is a comparatively new practice and the officers who have laid the rail have preferred not to commit themselves until they have gained more experience with this form of construction and are more familiar with its performance.

Long stretches of welded rail have now been in service in this country for varying periods. Such rails were laid in a tunnel as early as 1930, and in open track as early as 1932, and numerous installations have been made since these dates in both open track and tunnels. Having in mind the interest in this rail that railway officers have expressed, and believing that a considerable number of these installations have now been in service a sufficient time to permit definite conclusions to be formed with respect to its advantages and disadvantages, and particularly to its probable life and to the effects of expansion and contraction, the officers of those roads in which the rail is laid, were asked for certain information concerning their installations, as a basis for answering the foregoing questions and others that have been raised concerning the performance of long rails.

60 Miles in Open Track

Since 1930, when the Central of Georgia welded the rail in two of its tunnels, approximately 90 miles of welded rail have been laid, not including short stretches through crossings or along station platforms, of which about 30 miles was in tunnels and paved streets and approximately 60 miles in open track. In this discussion only the rail laid in open track will be considered, because certain conditions imposed by tunnels and paving shed little light on the advantages and disadvantages of welding rail out of face as a general practice.

Short stretches, comprising only a few hundred feet

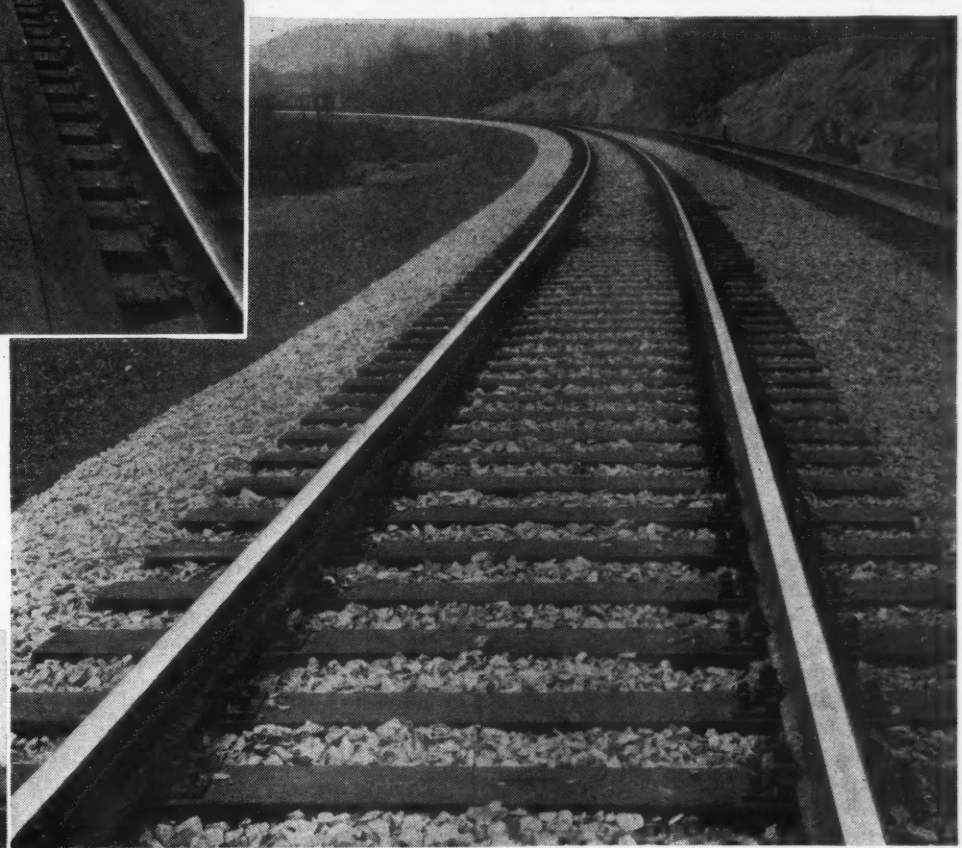
individually, through crossings and along station platforms are nowise representative of the many long stretches of welded rail that have been installed and, therefore, are not helpful in answering some of the questions that will be considered, for which reason they are also excluded from the discussion. It is believed that five years is the minimum period of service upon which sound conclusions can be based, with respect to performance and service life. For this reason, while a considerable number of installations of welded rail have been made during the last five years, only those that have been in service five or more years will be discussed.

It may be said in passing that all reports indicate that track maintenance in tunnels has been greatly improved and simplified where the rails have been welded into long lengths. Only a minor amount of welded rail in open track has been released from service, all of it for reasons in no way connected with the fact that it had been welded.

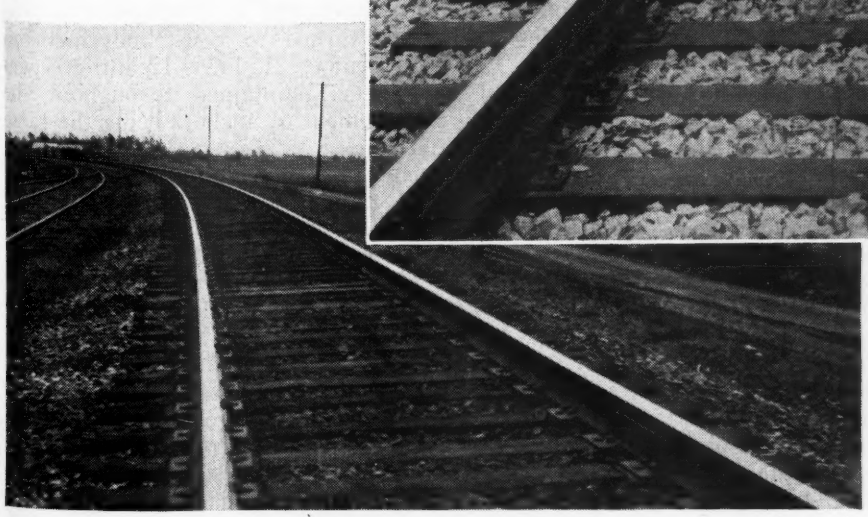
At present, five roads, the Bessemer & Lake Erie; the Central of Georgia; the Delaware & Hudson; the New York, New Haven & Hartford; and the Southern, have open-track installations of continuous welded rail, ranging on individual roads from a total of slightly less than one-half mile to more than 42 miles, with individual rails ranging to 6,982 ft. in length. These rails are laid on both tangents and curves, the latter ranging from 0 deg. 30 min. to 5 deg. 43 min. In this connection, it is of interest that when long rails, in lengths up to 1,500 ft., have been handled on flat cars around reverse curves as sharp at 15 deg., they have shown sufficient flexibility to cause no difficulty in making the movement and the rails have not shifted laterally on the cars.

Laid Under Many Conditions

Rails as light as 100 lb. and as heavy as 131 lb. are included in the installations. Ballast includes locomotive cinders, ore sand, furnace slag, limestone and trap rock; in one installation four tracks, each approximately 800 ft. long, are on open trestle. The traffic carried



Above — Continuously-Welded Rail on the New York, New Haven & Hartford. This Rail Is on a Steel Viaduct 800 Ft. Long. Right—Long Rails Laid on a Curve on the Bessemer & Lake Erie



Left — The Central of Georgia Used Cut Spikes and Double-Shoulder Tie Plates as Fastenings for Its Long Rails

over the rail ranges from freight only to predominately passenger traffic. On some lines, as many as 20 freight and 20 passenger trains pass over the rail daily; on one, the traffic amounts to 10 to 21 freight trains and no passenger trains; and another installation carries 57 passenger trains and 4 freight trains every 24 hours. Still another carries 2 passenger trains and 7 to 10 freight trains loaded with ore and coal during the lake shipping season, and a comparatively light traffic during the remainder of the year, although ore shipments continue for a considerable time after the lake traffic closes. On none of the lines upon which installations have been made do passenger train schedules exceed 60 miles an hour, although actual speeds are often well above this figure. Freight trains are scheduled at from 40 to 60 miles an hour, with a limit of 40 to 50 miles an hour on some lines. On one installation, on a freight line, the speed probably does not exceed 10 to 12 miles an hour.

Traffic ranges from 2,800,000 to 32,000,000 gross tons annually for freight alone. Depending, therefore, on the period that these installations have been in service, the rail has carried from 25,000,000 to 160,000,000 gross tons of freight, in addition to the passenger traffic that passes over them.

It is fair to assume that the gradients upon which the rail is laid will have some influence on its performance and possibly upon its service life. Among the numerous individual installations on the five roads which have been mentioned, long welded rails are laid on gradients ranging from level to 1.32 per cent. Some of these installations are on single track so that traffic passes over them in both directions; others are on multiple tracks where traffic is directional. Some of these installations are on ascending grades and some on descending grades.

It will be seen from the foregoing that the welded rail is in service under a wide variety of conditions, including the length of the individual rails, the weight of the sections, the alinement, the gradients, the ballast, the character and volume of traffic and the speed of trains. In some instances this rail was placed to provide a test of its performance under selected conditions. In general, however, the site was chosen for the purpose of improving maintenance or of eliminating a situation that was breeding trouble for the maintenance forces.

Does Welded Rail Expand?

More interest has been shown in the performance of welded rails under temperature changes than any other detail surrounding their use. This interest is natural, for practically every maintenance officer has had experience with sun kinks in "tight" rail under summer temperatures. Obviously, it is not possible to provide for a distributed movement of welded rail in expansion and contraction, as is done by means of the joint gap in conventional bolted rail where each rail expands and contracts independently of other rails. If a movement of corresponding magnitude is to take place in welded rail, the evidence of such movement should be found at the ends, and the amount should vary with the length of the continuous rail and the magnitude of the temperature change.

If unrestrained, the normal expansion of rail under a rise of 100 deg. in temperature is approximately 41 in. to the mile. For this reason, if a continuous welded rail should expand and contract normally, a real problem would be created in many of the installations, whether the movement is concentrated at one end or is divided between the two ends. In answering the questionnaire, one road did not give the range of atmospheric temperature for the localities where its rail is laid, but the others gave this range as being respectively from —10 deg. to 110 deg.; from 15 deg. to 120 deg.; from —30 deg. to 120 deg.; and from —15 deg. to 115 deg.

It is well known that rail exposed to the summer sun reaches a temperature considerably higher than that of the surrounding atmosphere, so that the temperature differences in the rail itself are somewhat greater than those in the atmosphere On this basis, therefore, theoretically, the total movement in expansion and contraction of a continuous rail one mile long, wholly unrestrained, should be not less than 40 in. and might exceed 60 in., depending on its location. Against this, all five roads reported that they are experiencing no difficulty from either end or intermediate movement of the rail. In fact, the total movement at the ends is comparable only to that which occurs in a 39-ft. rail with conventional joint fastenings.

Rail Is Restrained

Obviously, some form of restraint is being applied to these rails; otherwise they should move freely under temperature changes in accordance with the physical laws of expansion and contraction. Investigation has shown that a considerable part of this restraint arises from friction between the rail and the tie plate or the tie, and that this can be augmented by the use of rail fastenings, such as the spring clip type, which increase the pressure of the rail on the tie plate. Additional restraint can be obtained by applying anti-creepers, while the joint fastenings at the ends of the long rail generally provide considerable restraint. However, the ultimate restraint applied to the rail must come through resistance of the ballast to movement of the ties longitudinally of the track.

Of the five roads under study, two have made no change in the form of their track construction—that is, they are using double-shoulder tie plates and cut spikes. However, in both instances, extra anchorage, by means of anti-creepers, is applied for some distance from the ends of the long rails. The Southern has applied six anti-creepers to the normal rail length throughout its installations, except at the ends where this number is increased to from 10 to 30 per rail, depending on the length of the welded section. Originally, the Central of Georgia took no special precautions to prevent movement of its rail, except to apply six anti-creepers to the nominal rail length for a distance of 250 ft. from each end. In the fall, these anchors were placed to resist movement in contraction, and in the spring they were turned to resist movement in expansion. Since September 21, 1939, 12 anti-creepers to the panel have been maintained throughout the installation, this arrangement of anchors being the same as for conventional track.

The New Haven employs compression clips for fastening its welded rail but, as a precaution, it has applied one third more of these clips than it uses ordinarily on rail having conventional joint fastenings. The Delaware & Hudson has employed M. & L. tie plates on all of its welded rail, while the Bessemer & Lake Erie laid its welded rail with GEO fastenings.

To account for this phenomen of only slight movement at the end of long rails and of no intermediate movement under temperature changes, the A. R. E. A. Committee on Track has shown (Proceedings, Vol. 38, pg. 493) that when restraint of sufficient magnitude to prevent movement in expansion and contraction is

applied to the rail, an internal stress of 195 lb. per sq. in. is created for each change of one degree in temperature. For a change of 100 deg., this will amount to 19,500 lb. per sq. in.

How Restraint Is Applied

This immediately raises the question how a restraining force can be applied to prevent movement in a rail that is placed under so large a stress as that created by a wide difference in temperatures. In the first place, when the rail is laid there will be no internal temperature stresses, because up to this time it has been able to expand and contract freely. For this reason, when it is put under restraint, only those variations above or below the temperature at which it was laid will create internal stress, and the effective range of temperature changes will be reduced immediately. Obviously, therefore, if the temperature of the rail when it is laid is around 50 to 60 deg., it would appear that the maximum stress will be reduced materially, and this has been confirmed in practice.

Actual restraint is afforded by the joint fastenings at the ends of the welded rail; by the frictional resistance of the tie plates and the rail fastenings and from the application of anti-creepers for a sufficient distance from the ends of the rail. Determination by actual measurement has shown that joint restraint may be as much as 5,000 lb. per sq. in. of section of a 131-lb. rail, or approximately 65,000 lb., at each end of the welded rail. Investigation has also shown that tie restraint may be as low as 20 lb. per tie per rail in each direction, for double-shoulder tie plates and cut spikes, or as high as 700 lb. per tie per rail for the spring clip type of fastening. Likewise, anti-creepers have been found to exert a restraint of 850 lb. per tie per rail. How much more resistance to movement it might have been possible to develop in these cases is a matter of speculation, for restraint of greater magnitude was not required for the stresses that were measured.

Maintenance Difficulties

From the foregoing it will be seen that the necessary anchorage of the rail is not so difficult as appears at first glance. If the rail is laid at a temperature of 60 deg. and the temperature range is 75 deg. above and below this, the maximum total stress in a 131-lb. rail will be about 188,000 lb. in compression and an equal amount in tension. Assuming that the joint restraint at each end of the long rail is 65,000 lb. and the tie restraint is only 500 lb. per tie per rail, complete anchorage of the rail on 260 ties at each end, or for a distance of 470 ft. will prevent movement in either expansion or contraction. If, on the other hand, complete reliance is placed in anti-creepers, 220 will be sufficient to hold a rail of any length against movement.

Asked whether any difficulties have developed in the maintenance of the long rails, two roads report that they have experienced no difficulties, and that they know of no disadvantages. Two other roads report having had some failures in welded joints, but do not look upon this as an insurmountable difficulty, since these failures occurred in the earlier installations as a result of a faulty technic in welding or faulty materials, and it is believed that the causes have now been eliminated. One road reported that it had experienced no difficulties with the long rails, but noted that they are of some disadvantage when renewing bridge ties, since they cannot be removed but must be jacked up to permit old ties to be taken out and new ones inserted.

Only one case of buckling track was reported, and this occurred in rail that had been laid at a temperature well below 60 deg. The trouble was overcome by loosening the rail fastenings and allowing the rail to expand and run out at an open joint, where it was cropped by the amount it had run out. No further trouble has been experienced with this rail or with any of the rail that was laid at 60 deg.

In a few cases, bolts have sheared in the joints at the ends of the long rails, but investigation showed that this came about by reason of inaccurate field drilling of the bolt holes, so that when the rail contracted the entire loading came on a single bolt in the joint, shearing it off. This was corrected by redrilling the rail ends accurately and by applying six-hole joint bars instead of the four-hole bars used formerly. Otherwise, the expansion and contraction that have occurred in the installations on this road have been less than the clearance of the track bolts in the bolt holes.

It is the general testimony of the roads under study that the welded rail rides more smoothly than rail having conventional joints, and that the effort required to maintain it in smooth-riding condition is materially less. One road estimates that the cost of maintenance has been reduced 25 per cent, while another reports that since its rail was laid about six years ago, maintenance has been confined to a reduced amount of spot surfacing and an occasional tapping down of the spikes. Another road has been keeping an accurate record of the cost of maintenance on two stretches of welded rail and on two comparable stretches of rail having joint fastenings, for a period of three years. So far, the records indicate that the welded rail is costing appreciably less, but they are not yet considered conclusive since they have been kept for a relatively short time.

Several officers report less wear on ties, particularly on joint ties, and one officer points out that the smoother-riding track afforded by the welded rail should cause an appreciable reduction in the wear and tear on cars and locomotives. Line and gage are easier to maintain on the welded rail than on ordinary track, is the report from four of the roads, while the fifth finds no noticeable difference between the two. Two roads report that no gaging had been necessary since the rail was laid, and that less work is required to maintain line, while two also report that after the welded rail has been lined it remains in line longer than rail on jointed track.

What Service Life?

While none of the rail involved in this discussion has been in use a sufficient time to be removed from primary service, it is the considered opinion of the maintenance officers of the five roads that the welded rails will render longer service life than bolted rail. They base this belief on the fact that end batter and fishing wear are primarily responsible for shortening the life of bolted rail and that since there is neither end batter nor fishing wear in the welded rail, it would last until it becomes necessary to remove it for other reasons. Obviously, this does not apply to curves, where head wear is the factor that limits the life of the rail. In this case there does not seem to be any advantage, so far as service life is concerned, in the welded rail. It was suggested, however, that in many instances the installation of rail and flange lubricators

(*Continued on page 346*)

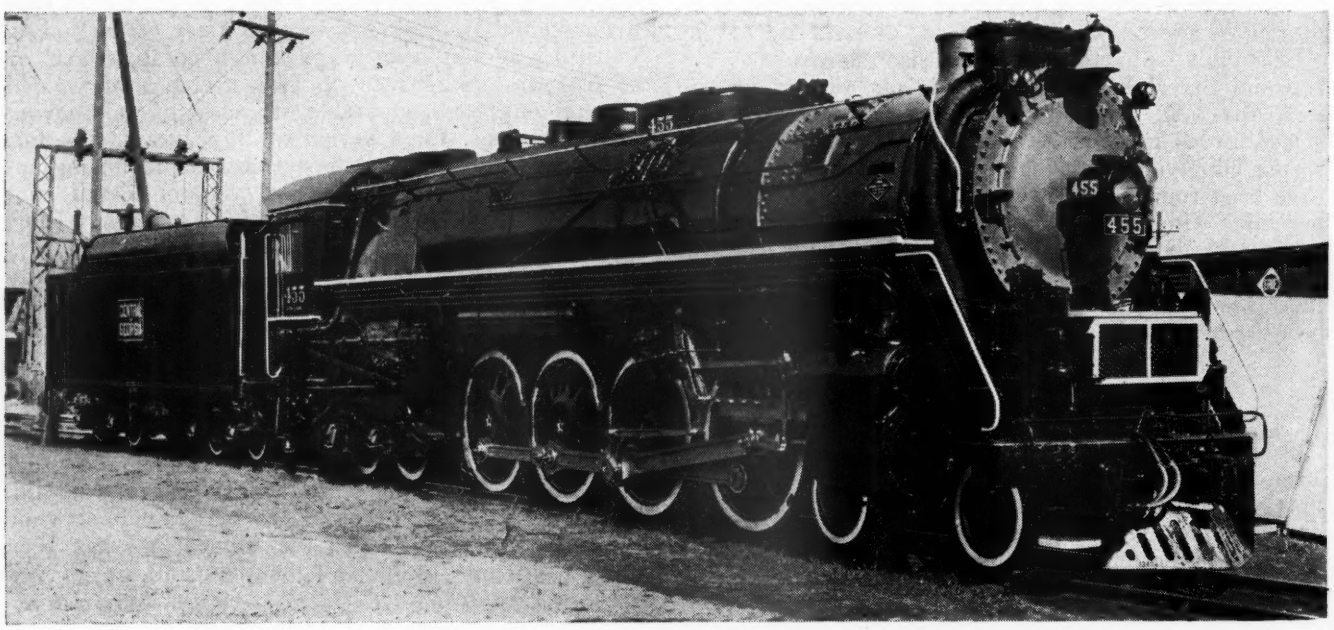
Central of Georgia Locomotives

Lima Locomotive Works delivers an order of eight freight and passenger units having a 63,200-lb. tractive force—Weight on drivers is 260,000 lb.

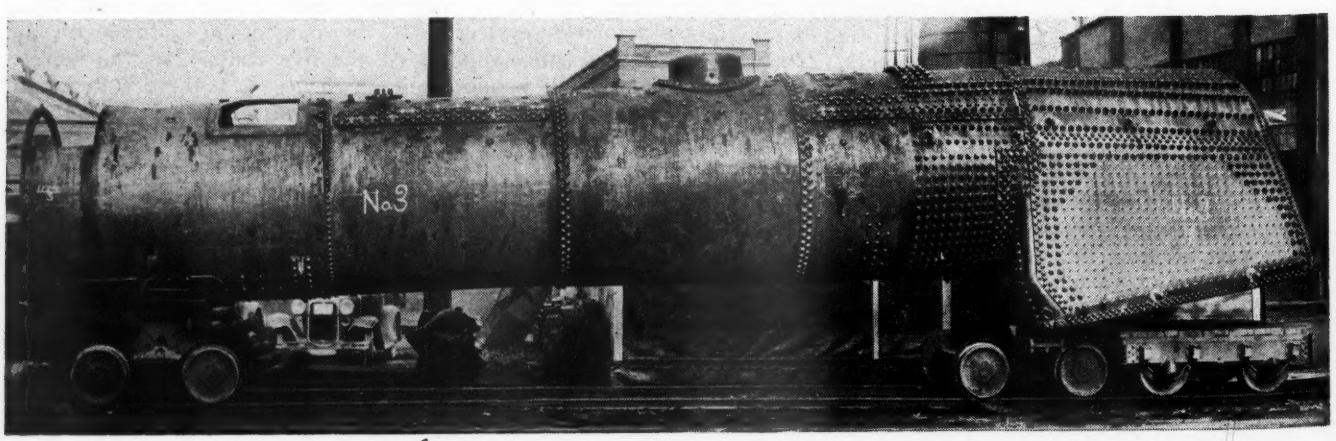
IN October, 1943, the Central of Georgia received eight 4-8-4 type steam locomotives built by Lima Locomotive Works, Inc. These locomotives have a rated tractive force of 63,200 lb. and will be used to handle fast passenger and freight trains over the Macon and Columbus divisions. They are at present handling such well-known trains as the Southland, Flamingo, Dixie Flyer, Dixie Limited and Seminole, all making Florida connections, using as an average 11.4 lb. of coal per passenger train car-mile. In freight service their fuel performance is well under 100 lb. of coal per 1,000 gross ton-miles. Much of the mileage made by these locomotives is over heavy-grade territory.

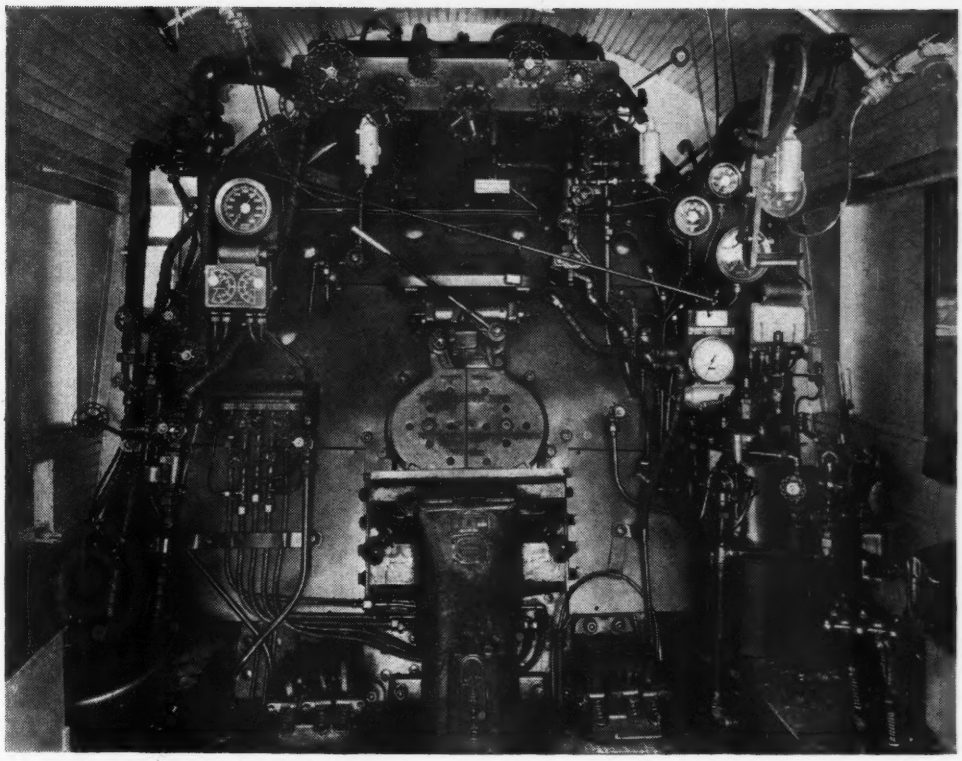
The locomotives have a General Steel Castings Corporation cast-steel bed. The engine truck is the four-wheel inside-bearing swing-motion type, having 30 per cent initial and 15 per cent constant resistance at rockers. The center pin is cast integral with the bed casting. The trailer truck is the four-wheeled Delta type designed for 15 per cent initial and 10 per cent constant resistance at the rockers. The frame is arranged to suit double coil springs at the rear of the truck equalizer system. Both engine and trailer trucks were furnished by the General Steel Castings Corporation.

The driving-wheels centers are of General Steel Castings Corporation Boxpok type 66 in. in diameter and 73½ in. diameter over tires. There are no hub liners on the driving wheels, the face being machined smooth and rolled. Engine-truck wheels are 36 in. in



These Locomotives Are Now Handling Fast Passenger and Freight Trains





Backhead and Cab Arrangement

diameter, wrought-steel, multiple-wear type having no hub liners and with the entire wheel heat-treated WPB standard section No. 36-B X from Standard Steel Works. The trailer truck wheels have cast-steel centers, 38 in. in diameter with 45½ in. diameter over the tires. There are no hub liners on the trailer-truck wheels. The valve gear is the Walschaerts type actuated by an Alco Type G power reverse gear. The exhaust of the gear is piped to lubricate the piston rod. The quadrant is blanked off so that the engine cannot be hooked up in forward gear to less than 25 per cent cut off.

General Dimensions and Weights of the Central of Georgia 4-8-4 Type Locomotive

Railroad	Central of Georgia
Builder	Lima Locomotive Works
Type of locomotive	4–8–4
Road class	K
Road numbers	451–458
Date built	October, 1943
Service	Fast freight and passenger
Rated tractive force, engine, 85 per cent, lb.	63,200
Weights in working order, lb.:	
On drivers	260,000
On front truck	78,900
On trailing truck	108,300
Total engine	447,200
Tender (fully loaded)	246,640
Wheel bases, ft.-in.:	
Driving	20– 0
Engine, total	45–10
Engine and tender, total	83– 6
Driving wheels, diameter outside tires, in.	73½
Cylinders, number, diameter and stroke, in.	2—27 x 30
Valve gear, type	Walschaerts
Valves, piston type, size, in.	12
Maximum valve travel, in.	7¼
Boiler:	
Steam pressure, lb.	250
Diameter, first ring, inside, in.	86
Firebox length, in.	127⅛
Firebox width, in.	102¼
Combustion chamber length, in.	60⅛
Arch tubes, number and length, in.	2—126⅝
Syphons, number	2
Tubes, number and diameter, in.	56—2¼
Flues, number and diameter, in.	159—4
Length over tube sheets, ft.-in.	21—6
Fuel	Bituminous coal
Grate area, sq. ft.	90.2
Heating surfaces, sq. ft.:	
Firebox and comb. chamber and syphons	435
Tubes and flues	4,270
Evaporative, total	4,705
Superheater	2,059
Combined evap. and superheat	6,764
Tender:	
Style	Rectangular U
Water capacity, gal.	13,000
Fuel capacity, tons	21
Trucks	four-wheel

The main and side rods are of medium carbon steel normalized and drawn. All are of I-section with Magnus bronze bushings. The main-rod front-end bearing is of the one-piece type while the back end bearing is solid with a floating bronze bushing in a Hunt-Spiller gun-iron fixed bushing. The side rods have Hunt-Spiller gun iron fixed bushings at the main and intermediate pins, the other bushings being the floating type. All floating bushings in the main and side rods are provided with floating flanges made of steel plate. All the main and side-rod and knuckle-pin bearings are lubricated through the pins and grease cups are not required. The engine is equipped with multiple-bearing guides and crossheads, force-feed lubricated.

The driving boxes are of cast steel with Magnus bronze bearings. The hub faces are of Satco metal with brass inserts. The boxes are equipped with Franklin No. 8 cellars for grease journal lubrication. The Alco lateral cushioning device is used on the front drivers and allows 9/16 in. total lateral.

The engine truck and trailer truck boxes are of cast-steel with Magnus self-cooling oil-type bearings. The boxes are arranged for force-feed lubrication to waste packing.

The boiler is radial stayed with a conical barrel, 86 in. outside diameter at the front and 96 in. outside diameter at the throat. The shell is of flange quality basic carbon steel. The horizontal seams are quintuple riveted butt joints with inside and outside welts and seal welded on both ends. The girth seams of the barrel and throat are double-riveted lap joints.

The firebox is equipped with two Locomotive Fire-

box Corporation's syphons as well as two arch tubes 3½ in. in diameter. Welding is used throughout the firebox. The inside throat sheet is welded in with the exception of the bottom edge which is riveted to the mud ring. There are no longitudinal welds above a point 15 in. below the top of the sheet. The firedoor sheet is butt welded to the side and crown sheets and the back tube sheet is welded to the combustion chamber.

These locomotives are equipped with the Superheater Company's Type E superheaters and American multiple throttle with the Superheater Company's washout system for throttle and header.

The tenders of these locomotives are of the rectangular U type with four-wheel trucks and have a water capacity of 13,000 gals. with 21 tons of coal. The tender coal space is equipped with a Standard Stoker coal pusher. The stoker engine is also on the tender.

The air brake is the New York Air Brake Company's No. 8-ET equipment with brake shoes on the driving wheels and tender only.

How Long Can a Rail Be?

(*Continued from page 343*)

will extend the life of curved rail beyond the expected life of the bolted rail.

Are there any conditions surrounding the welding, installation and maintenance of long rails, or the service that has been obtained from them that indicate that a limit should be placed on the length of the individual rails? In answering this query, two roads expressed the belief that their experience with welded rails was too limited to warrant drawing a conclusion, although they did not mention any factors that might indicate the need for such a limit. The remainder expressed the belief that the only limitation will be the necessity for introducing insulated joints, or for providing joints at turnouts and railway crossings at grade. One chief engineer said that the problem is not so much that of the maximum length that is practical, but the minimum length that is economical. In other words, these men believe that there is no physical limit to the length that can be installed, and that this length will be determined solely by the necessity for inserting joints to accommodate signals and turnouts.

All of the roads expressed the belief that the welding of rails into long strings and the installation of these rails in the track is entirely practical. This practice is a relatively new one, however, which has not yet had sufficiently wide application to remove it from the experimental stage. Since experimental installations frequently develop some factors adverse to the extension of a practice, inquiry was made as to what deterring factors had developed. Three such factors were mentioned, these being (1) the initial expense, (2) the difficulty of replacement in case one or more rails require renewal; and (3) the difficulty in mobilizing the equipment for handling long strings of rail.

Summarizing the collective viewpoint, these officers find that welded rail offers no support for fears regarding difficulties with expansion. On the other hand they report that it offers a distinct saving in track maintenance and every prospect for longer life for the rail, so that there should be less frequent renewals. They advise also that there is less destruction of the ties by reason of the elimination of joints and for the same reason track circuits give less trouble and can be made longer. In addition, they state that the track rides more smoothly and quieter.

First Streamliner Delivered Ten Years Ago

EXACTLY ten years ago (February 12, 1934), the first streamline train was delivered to the Union Pacific by the Pullman-Standard Car Manufacturing Company. First designated the M-10000, this train started the day after its delivery on the first leg of an extensive 12-weeks' tour across the country. After completing the tour, it was on exhibition all summer at the Century of Progress Exposition in Chicago.

Being the first streamline train delivered, the M-10000 captured the fancy of the American people because it presaged new speeds and comforts in railway transportation. All along its route crowds lined the tracks to see it flash by, and in cities where it was exhibited people waited in long lines to inspect it.

An estimated 10,000,000 people saw this yellow and brown streamliner before it was finally placed in regular service by the Union Pacific in Kansas in daily round trips between Kansas City and Salina and between Kansas City and Topeka. Christened the City of Salina, it maintained an average speed of 56 miles an hour over this daily 510-mile route.

How the Streamliner Idea Originated

The country's finest streamline trains were developed because railway officers became convinced that the railroads would have to develop a radically different type of equipment if they were to recover a satisfactory volume of passenger traffic. Consequently the Union Pacific gave an order, early in 1933, to Pullman-Standard for the construction of such a train.

Following the popular acclaim of the City of Salina, the Union Pacific acquired additional longer trains of the same general type of construction, built in six-car, seven-car, eleven-car and finally seventeen-car units. A total of eight of these trains are now in service on the Union Pacific. The second six-car train, the M-10001, which eventually became the City of Portland, made a record high-speed run of 3,258 miles from Los Angeles, Cal., to New York in 56 hr. 55 min., during the latter part of October, 1934. A maximum speed of 120 miles an hour was reported in this test run and the 508 miles between Cheyenne, Wyo., and Omaha, Neb., was made at an average speed of 84 miles an hour.

The first Union Pacific streamliner proved inadequate to handle the crowds. Long before advance travel reservations became commonplace on war-crowded trains, travelers on this train had to secure reservations as much as a month or more in advance to obtain accommodations.

The City of Salina fully confirmed the belief of its designers that such a train was needed to restore passenger volume, and this train is said to have earned over three times its cost in seven years of operation.

City of Salina Exhibited at Washington

In its first public exhibition, which was held in Washington, D. C., on February 15, 1934, the M-10000 was inspected by President Roosevelt, members of his cabinet, congressmen and other high government officials. The following day a group of capital dignitaries were guests aboard the train on a round-trip test run to Baltimore, Md.

From the capital the train swung back to Chicago,

Crowd Which Gathered to See the City of Salina When It Passed Through Baker, Ore., in 1934

being exhibited in Pittsburgh, Pa., and Detroit, Mich., en-route. After a two-day exhibition in Chicago the train headed west, stopping for other public appearances in Omaha, Neb., and Denver, Colo. Throughout its tour, the M-10000 halted for brief periods of from five minutes to several hours in the smaller towns on the route.

On the West Coast, the streamliner was visited by thousands in Los Angeles, San Francisco, Portland and Seattle. Then it turned east through Idaho and Montana and finally reached Kansas City, from where it returned to Omaha. After making its first revenue trip, a two-day round-trip journey between Omaha and Gering, Neb., it left on another public tour to Minneapolis and Milwaukee before returning to Chicago for a summer-long exhibition at the Century of Progress Exposition.

Principal Features of the Construction

The City of Salina was a three-car articulated train, powered by a 600-hp., 12-cylinder distillate-burning engine. Made of aluminum alloys, the entire train weighed only 190,000 lb., not much more than one conventional heavy car. It had an overall length of 204 ft. 5 in., and was 8 in. narrower and the roof was 3 ft. lower than conventional trains.

The first car of the train contained the driver's cab, the power plant, air-conditioning equipment, a 33-ft. mail compartment and a small baggage room. The second car was a coach seating 60 passengers. The third car provided 56 additional seats and a buffet kitchen in the rear for serving light meals to passengers at their seats.

Among the principal features of the City of Salina which represented advances over earlier conventional trains were air-conditioning, safety glass windows permanently sealed in rubber to exclude dirt, indirect lighting, four-position reclining seats and a decelerometer on the brakes which enabled the train to stop quickly from high speeds without the danger of wheel sliding. The distinctive yellow and brown color was chosen in the interest of easy visibility to motorists and pedestrians, and a vertical beam headlight was first used on this train as an added safety factor for night operation.

Like some of the other early streamliners, the City of Salina is no longer in operation. The power plant became worn out and obsolete and the small, three-car train was unable to handle the traffic it had been instrumental in building. The Union Pacific intended to place the City of Salina in its museum, but in 1941 the nation was faced with a critical shortage of aluminum for war purposes, so metal in the car bodies was contributed to the aluminum scrap drive. Officers of the railroad reported that from a material and structural design standpoint, the cars could have been continued in service indefinitely.

During the seven years the City of Salina served on the Kansas City-Salina run it traveled 899,113 miles and earned a total gross revenue of $717,685.

* * * *

Reading's First Woman Brakeman

Helen Barlow, of Philadelphia, donned the smart blue uniform and cap that is regulation dress, and took over her new duties in December—Now 20 more young women are being trained for suburban service.

Making Friends With the Public

Good service is the prime requisite—Thereafter a public relations officer is needed to develop other means of winning favor, avoiding offense

By Samuel O. Dunn

Chairman, Simmons-Boardman Publishing Corporation, and Editor of Railway Age

Where Top Management's Duty Lies

Management's primary duty being to produce earnings for owners—and the state of public opinion being a main determinant of the quantity or even the existence of earnings—it follows that honest and competent cultivation of popular esteem is as much a part of management's obligation to its employers as is honest and efficient operation of the property.

Oversight of public relations is a specialized function, calling for an officer skilled in the duties of his task—which is, first of all, to advise management of means by which it may cultivate good will. It takes deeds, not "publicity" alone, to foster friendly feeling.

In 34 years' experience with this realm of railroading, the author notes a considerable heightening of managerial comprehension of the importance of this function—but results do not indicate that, even yet, such understanding has achieved adequate intensity.

THERE has been developing in this country for perhaps a third of a century a new profession which is already important, and should become much more important. It is devoted to improving the relations of business with the public. Its practitioners are called "public relations counselors," or "public relations officers." When connected with individual corporations or with business associations, they are usually given such titles as "vice-president—public relations," "assistant to president—public relations" or "executive assistant." Upon the further development and increase in the activities of this profession may largely depend the future of private enterprise in this country.

New Profession Began on the Railroads

Our railroads were one of the first industries by which activities specifically intended to improve "public relations" began to be developed. This was because for some years prior to a third of a century ago the railroads were confronted with as hostile a public sentiment as any industry ever faced. I know this, because I began studying and writing on transportation almost forty years ago when I was an editorial writer on a metropolitan newspaper. Hostile public sentiment was, that long ago, causing adoption of state and federal legislation for the regulation of almost every phase of railway management, rate making, operation and accounting, and pushing the railroads toward government ownership.

It long has been almost impossible for the railways to be prosperous and popular at the same time. Forty years ago, and for some years subsequently, they were the most prosperous they ever have been. Perhaps their prosperity was one of the reasons for their unpopularity; but it was greatly enhanced by certain practices and conditions. In many states the people bitterly resented the political activities of railroad lobbyists. The distribution of free passes to influence politics and traffic was much too notorious. Not less notorious had become the practice of giving rebates to shippers, especially large shippers. The railway accident record was terrible. And the big increase in traffic that followed the depression of the '90's resulted in large and prolonged so-called "shortages of cars" which enraged shippers, both agricultural and industrial.

Business Men Supported Anti-R.R. Measures

The flood of state legislation for the regulation of railways in the last half of the decade ending with 1910 was accompanied and followed by federal legislation to give the Interstate Commerce Commission authority effectively to regulate rates and to make a so-called "physical valuation" of railroads by the use of which railway profits could be measured and restricted. That was the beginning in this country of the regulation and restriction of business profits, which, in various ways, have been extended during the last decade to other industries. It is desirable to recall now that every piece of legislation passed during that period to reduce and restrict railway profits was supported by business interests which subsequently have found it necessary to oppose regulation and restriction of their own profits.

Experience forcibly demonstrates that no industry can support any form of government interference with any other industry without taking the risk of helping establish a precedent for similar government treatment of all industries.

The railroads fast learned that their lobbies at the state and federal capitals had become ineffective and a liability. Therefore, they began what was then called "lobbying with the people," but is now called "public relations work." I happen to have more or less participated on behalf of the railroads in this kind of work almost from its inception. Thirty-four years ago, when I was western editor of *Railway Age*, a large railway asked me to consider entering its service as assistant

This article comprises an address to the Railway Club of Pittsburgh, Pa., on January 27.

to the president in charge of public relations. I believe that was the first time the creation of any such railway position was considered. Soon afterward the Bureau of Railway Economics was established with six railway presidents as an executive committee; and I was employed to give part of my time to work for the three presidents composing the western sub-committee. The establishment of the Bureau of Railway Economics was virtually the beginning of public relations work for the railways.

Ivy L. Lee, who subsequently acquired fame as public relations counselor for numerous large business interests, was then "publicity manager" of the Pennsylvania Railroad. I believe he was the first man employed by a railroad in any such capacity. The Bureau of Railway Economics long ago began confining itself to and enlarging its important function of preparing statistical material for railway use. Meantime, public relations activities have been greatly increased and broadened by individual railways, by groups of railways, and by the Association of American Railroads.

The Goal and the Means to It

What is, or should be, the purpose of public relations activities? How and by whom should they be carried on?

Regarding what should be their objective I will express an opinion that may sound reactionary to many persons. Their objective should be the same as that of all other activities carried on by a company or industry—viz., to help it earn enough profits to enable it to pay fair and adequate dividends to its stockholders. To create and maintain a public sentiment favorable to private ownership and management of railways is universally recognized as a purpose of railway public relations work.

But it will not save private ownership merely to create a public sentiment favorable to maintaining it. There must be created a public sentiment favorable to the indispensable *means* of maintaining private ownership; and that indispensable *means* is the making of enough net earnings to pay fixed charges and adequate dividends. This is a point of such vital importance that I venture to emphasize and elaborate on it. We are confronted with a widespread socialistic sentiment favoring a permanent redistribution of our national income resulting in wage earners getting more of it and property owners less. But sentiment cannot change economic laws.

Public understanding of (1) what free private enterprise is, (2) what it has done for our people and (3) how it should be managed and treated, must be greatly increased if private enterprise in this country is in future to promote the public welfare as it has in the past. And if this better public understanding is to be created, public relations activities on behalf of railroads and other industries will have to be greatly increased in scope, intelligence and courage.

Propaganda Only Part of Public Relations Work

I do not mean by "public relations activities" merely the dissemination of propaganda, however good and necessary. Such activities include everything that can be done by a privately-owned industry to improve and cheapen its products or service, and to increase public good will toward it. The best public relations work ever done for the railways has been their amazing achievement in handling traffic during the present war. But the public would not have known and appreciated what the railways have done and how they have done it without the successful efforts of the railways' public relations officers to keep the public informed and to enlist its co-operation.

Public sentiment is the most favorable to the railways now that it ever has been within the last half-century. But only too much experience, including very recent experience, has shown that merely gaining public good will is not enough to protect an industry from attacks tending to disable it from giving economical and satisfactory service. It is not even now protecting the railways from effective demands for advances in wages largely exceeding those recommended by government boards, or from dangerous attacks, especially by Southern politicians, on their freight rates.

Private enterprise will not be saved by a public sentiment that only passively favors it. It can be saved only by a public sentiment so educated and aroused that it will manifest and vote its opposition to every policy, whether of business, labor unions or government, tending to destroy private enterprise.

One of the gravest menaces to democracy and prosperity in the post-war period is the fear of "cracking down" by the federal government which has been increasingly preventing business leaders from saying and doing what should, in the public interest, be said and done. This fear existed before the war; and it has been increased during the war by incessant warnings against saying or doing anything that might hinder the war effort —warnings which have caused many, both inside and outside of government, to treat criticism of almost any current government action or policy as unpatriotic, although numerous government policies adopted during the war may have their most important effects after the war.

Why So Little for the Stockholders?

Facts regarding dividends on railroad stock illustrate the effects of unwholesome government pressure on business management. The largest total railway dividends ever paid in any year was $497 million in 1930. In the last three years net income earned and available for dividends averaged $800 million a year. But dividends paid to the stockholders owning railway properties averaged only $200 million a year. Why? Undoubtedly largely owing to management's fear of being criticized for "profiteering" and promoting inflation. But wage rates were advanced in 1941 and again in 1943 and 1944 because of *government action.* As compared with 1940, total railway wages increased $400 million in 1941; $968 million in 1942; at least $1,600 million in 1943. Why fear to increase dividends when government apparently cannot see profiteering or inflation in increases of wages so far exceeding dividends? But the fear has existed and been effective.

In World War I the lowest average price to which Dow-Jones' list of standard railway stocks declined was $71. In January, 1944, in spite of the large earnings made in the three preceding years, and still being made, this average has been only about $35. The railroads' stocks can never be sold at prices that will enable them to raise enough "venture" capital unless their present total dividends are more than doubled and there is reasonable prospect of the increased dividends being maintained. But railways and other industries cannot provide adequate employment, production and service after the war unless they can raise many billions of "venture" capital—i. e., capital raised not by *borrowing,* but by selling stock to persons willing to take the risk of becoming stockholders and *owners* in the hope and expectation, however, of usually getting substantial dividends. The public must be made to understand this and to cause government policies that will allow the earning of ade-

quate profits and the payment of adequate dividends, or government policies will rapidly replace private enterprise with state socialism.

The ownership of every corporation is vested in its stockholders. Therefore, the management of every corporation is employed by its stockholders. Our railways represent an investment of about $26 billion. Their indebtedness of about $11 billion represents capital that the stockholders have borrowed and invested. Their remaining investment of about $15 billion represents capital that the stockholders have supplied either by the investment of net income that could have been paid them in dividends or by the sale of stock to stockholders. The number of shares outstanding being about 9½ million, each share of it, on the average, represents an investment by stockholders of almost $160. Therefore, the total annual dividends of only about $200 million a year paid during the last three years have averaged only about $2 a year on each share of stock and only $1.25 on each $100 of investment represented by stock—this in spite of the fact that annual net income has averaged more than $8 on each share of stock and more than $5 on each $100 of investment represented by stock.

Getting Ready for Future "Demands"

The railways long have been criticized for having increased their indebtedness too much, and they are being urged now to use much of their large war-time net income to pay off indebtedness, and are doing so. Meantime, the Interstate Commerce Commission and the courts are compelling reorganizations that greatly reduce the indebtedness and fixed charges of roads bankrupted during the depression and in most cases wipe out the old stock. For what purpose are dividends that could be paid by railways that have remained solvent being so restricted now, and why are the stocks of railways that became bankrupt but that are now actually solvent being wiped out? It is said this will better enable them to meet demands upon them in future. But demands from whom? From railway employees whose average hourly wage is now 40 per cent higher than in prosperous 1929? From bondholders whose holdings represent only 40 per cent of the investment in railways as compared with 60 per cent represented by stock? Or from the public, for good and cheap service?

What Advantage in Being an Owner?

When private ownership and management results—as it did in 1943—in gross earnings of over $9 billion, and in the payment of $3½ billion in wages to employees, almost $2 billion in taxes to government, $660 million in fixed charges and only about $235 million to the stockholders who *own* the railways, their owners may well begin to question the advantages of private ownership and management to private *owners,* and whether private management is putting up the fight it should for the private owners who are actually its employers. The essence of private enterprise is not private *management* of property, but private *ownership* of it; and property, even though privately-managed, ceases to be a part of private enterprise when the interests of its owners are completely subordinated to the demands of government for taxes and of its employees for wages.

The rights and interest of the public are paramount. But they do not conflict with those of railway stockholders. For it will be necessary, in the public interest, for the railways in future, as in the past, to invest billions of capital in rehabilitating, expanding and improving their properties. Experience shows they should raise little or none of it by selling bonds and increasing their indebtedness and fixed charges. The only alternative is for them to make enough income, first, to retain and invest part of it, as they usually have, and, second, to use part of it in paying sufficient dividends to enable them to raise capital by selling stock at par or more. The public cannot and will not in the long run be served as economically and well as it should be unless public authorities give railroad management opportunity to earn enough to pay adequate dividends and unless management has the courage to pay them and to defend their payment when enough is earned.

Private enterprise will have reason for fear only as long as public sentiment supports or is passive regarding governmental attacks on private enterprise. But such attacks take many forms; and there is going to be required a long, intelligently-conducted and courageous campaign of public education to enable the public to recognize the purpose and tendency of these various attacks, and to array it against them.

And I emphasize the word "courageous"; because the needed campaign of education cannot be successfully conducted by a business leadership which fearfully refrains from doing and saying whatever is necessary to make private enterprise function in the interest of the public and to defending what private enterprise must do in order thus to function. The work necessary to create a public sentiment that will save private enterprise will have to be done principally by the public relations departments which many companies and industries have been developing. But it will not and cannot be effectively done unless business leaders recognize the vital importance of all activities tending to improve the relations between business and the public, and give courageous and adequate backing to such activities.

Inadequate Appreciation of Public Relations

The first essential to getting business leaders adequately to back public relations activities is that of getting business leaders to recognize the necessary scope and vital importance of such activities. That many business leaders do not recognize the vital importance of such activities seems plain to me, and that many do not recognize what is their needed scope and how and by whom they should be carried on seems clearly plain.

Everything that the management and employees of an industry do, everything that is said in its behalf, influences public sentiment toward it. One of the most important means of improving relations with the public is that of educating and training all employees to co-operate in improving the service rendered the public.

I have referred to the way in which the railways have handled the war-time traffic as being the best public relations work ever done for them. I will go back now a third of a century and recall another of the best pieces of public relations work ever done for them. The unpopularity from which the railways suffered then was largely due to their terrible accident record. In the summer of 1910 there was held at Baraboo, Wis., a meeting at which there was formed a divisional committee of officers and employees of the North Western to carry on "safety first" work. I happen to have attended that meeting. The committee formed was the first organized in this country to bring about co-operation by railway officers and employees to reduce accidents. I wrote an article and editorial for *Railway Age* describing the plan adopted and emphasizing its potentialities; and this plan for promoting "safety-first" spread rapidly over the railways with remarkable results.

In the year ended June 30, 1911, the railways had 450 employees for each employee killed and carried 3,670,000 passengers for each passenger killed. Within ten years the number of employees for each employee killed increased to 1,160, and the number of passengers carried for each passenger killed increased to more than 5 million.

In twenty years the number of employees for each employee killed increased to 1,907 and the number of passengers carried for each passenger killed increased to 13 million. That is, within twenty years the ratio of fatalities to the numbers of persons employed and passengers carried was reduced 75 per cent; and ever since the safety record of our railways has been perhaps the best of any large industry in the world. But in order that the railway industry could get full credit for this great achievement it was necessary, and has continued to be necessary, to publicize the achievement. An industry does not do either itself or the public justice unless it not only serves the public the best that it can, but also does its best to keep the public informed regarding how it is being served.

Another great railway achievement was begun in 1923. In that year the chief executives adopted two important policies for eliminating the so-called "car shortages" which had caused so much public hostility. They then adopted and for eight years carried out a program for making a large investment in the expansion of their properties.

Shippers Aid to End Car Shortages

At the same time they began seeking the co-operation of the nation's shippers by promoting the organization of regional shippers' advisory boards, the purposes of which have been to estimate prospective increases or decreases of freight traffic and to cause more efficient utilization of available facilities. As a result car shortages were abolished in the prosperous '20's, and it has been possible for the railways to handle the enormously increased traffic of the present war period. Instead of the inefficient use of equipment, the so-called "shortages" and the bitter antagonism of shippers toward the railways, which prevailed during World War I, there have been during this war unprecedentedly efficient utilization of equipment, only small shortages of cars and the best possible feeling between railways and shippers. But the great achievement of the railways during this war, which has been largely made possible by the co-operation of shippers, would not be appreciated by the public in general as it is if what has been accomplished and how it has been accomplished had not been sedulously publicized.

Another development during the last decade which has favorably influenced public sentiment has been the development, installation and use of fast, lightweight, streamlined passenger trains. But these trains had to be nationally publicized to produce the effect upon public sentiment that they have.

The Formula: Performance *Plus* Publicity

All such experience emphasizes that the preservation of private enterprise depends not only upon serving the public well, but also upon constantly informing the public of what private enterprise has done, is doing and intends to do, and emphasizing what the public must cause government to do and not do in order to enable private enterprise to serve the public more adequately and efficiently than it could be served by the state socialism toward which we have been drifting. Private enterprise must act in accordance with the old slogan for success, "Work like hell and advertise."

When, almost thirty-four years ago, I was considered for the position of assistant to the president in charge of public relations of a large railway system, I told those who broached the matter that a public relations officer could not accomplish much unless authorized not only to represent the railroad to the public, but also to represent the public to the railroad. My reference to representing the public to the railroad prevented me from getting the job. Only a short time before I had been flatly told by the president of another railroad that it was no part of his duty to tell the public about his railroad's business. These two incidents illustrate the attitude of many railway chief executives at that time. They were only beginning to emerge from "the public be damned" era.

Industry's Attitude Changes

The attitude of chief executives in other industries has since changed greatly. But there is not yet sufficient recognition by them of the vital importance of public relations work. Owing to the trend toward ever increasing government interference in business, informing the public and influencing public sentiment has become one of the major functions of business management. The performance of this function requires men who are familiar with economic facts and principles, who know what business management must do to gain and hold public favor, and who are, therefore, qualified, on the one hand, to advise chief executives and other corporation officials, and, on the other hand, to write and speak lucidly, interestingly and forcibly for public consumption on all the issues raised affecting the relations between business, government and the public.

Men possessing these qualifications are not numerous, because the profession of public relations, unlike that of law, or medicine, or architecture, is new. But men of the required intelligence and ability are available and will develop if afforded sufficient opportunity, incentive and backing.

"Publicity Men" Not Enough

The day is past when industry can safely proceed upon the assumption that all it needs, in order constantly and adequately to present its case to the public, are so-called "publicity men." All industry needs to awaken to a realization that we are engaged in this country in a great struggle to prevent private enterprise from being supplanted by state socialism, and that private enterprise cannot win in this struggle without statesmanlike management of its affairs, including courageous and statesmanlike presentation of its case to the entire American people. Business must spare no reasonable effort to create a public sentiment which will make it good politics for politicians to support sound public policies. For, as Eric Johnston, president of the U. S. Chamber of Commerce, has said, "A statesman is a politician who is held upright by equal pressure from all directions."

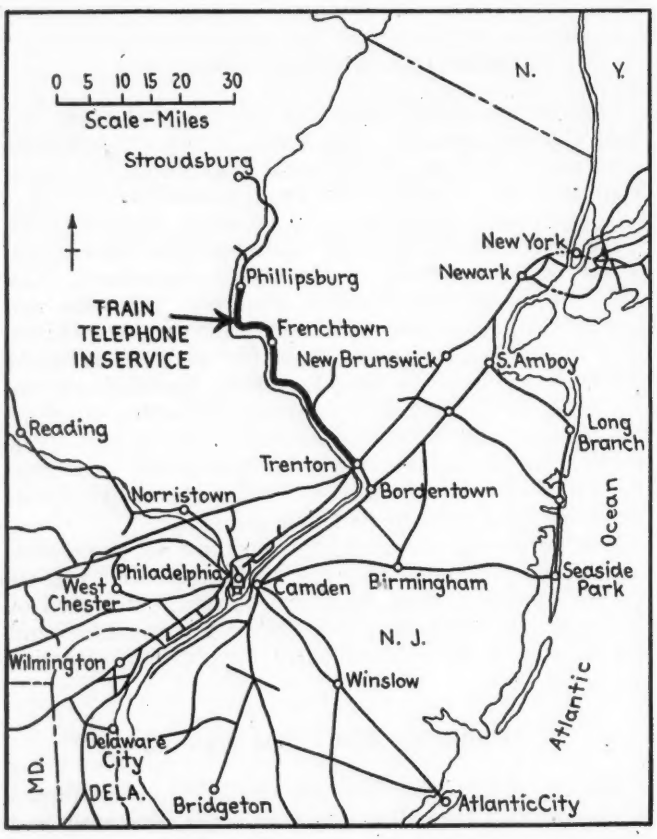
The report on public relations by the Railroad Committee for the Study of Transportation—which especially stresses the responsibility of a railroad's chief executive for the state of health of its relations with the public—is reviewed on page 362 herein.

Train Telephone Communication

Telephone system employed by the Pennsylvania provides continuous communication between trains, between front and rear of trains, and between trains and wayside towers

By W. R. Triem

General Superintendent of Telegraph, Pennsylvania Railroad



Eastern Lines of the Pennsylvania, Showing the Section Equipped with the Train Telephone Communication System

A LONG felt need for a means of communication between trains, whether moving or standing, and between trains and wayside stations is believed to have been met in the train telephone system being given trials on the Belvidere branch of the New York Division of the Pennsylvania Railroad. This telephone system is the result of joint development by the Pennsylvania and other railroads with the Union Switch & Signal Company over a period of several years. Since the earliest days of experimentation with radio the railroads and manufacturers of electrical equipment have been attempting to solve the problem of providing reliable communication on and between railroad trains and wayside stations.

This innovation is the latest of a long list of improvements developed by the Pennsylvania and other railroads in cooperation with various electrical manufacturers to expedite train movements and afford better service for the public. Discoveries and developments in the field of electronics have been utilized by the railroads in numerous ways, and constant research is under way to find means of further increasing the efficiency of railroad operations. Among more recent contributions in the field of electrical and electronic developments are centralized traffic control, dragging equipment detectors, cab signals, radio-telephone tugboat dispatching, telephone announcing systems in yards and stations, yard engine telephone systems, magnaflux method of examination of axles for cracks, Sperry apparatus for detecting flaws in rails, and the like.

Among these, an outstanding contribution to train operation is the cab signal, by means of which a signal is displayed in the cab of a locomotive reproducing wayside signal indications and keeping the engineman constantly advised of the conditions on the track ahead of his train. In the development of this cab signal system it was found that a further extension of the application of electronics to railroad operation was possible, to provide a means of communication between moving trains and between moving trains and wayside stations.

Present System Result of Research

The train telephone in use on the Pennsylvania Railroad today is a result of these studies. Actually, it is neither radio nor telephone. It incorporates certain features of both types of equipment and eliminates other features of both systems. So far as radio is concerned, it must be remembered that essentially, communications by radio are broadcast to all suitably tuned receiving sets within transmission distances through ground and atmosphere; i.e., through transmission paths universally provided by nature. Radio would possibly fulfill the requirements of communication between moving trains and between moving trains and wayside stations if it were not necessary to share with others the privilege of the air and conform to Federal rules and regulations so essential to the maintenance of order under crowded and competitive conditions. On the other hand, wire telephony does not fulfill all of the requirements of communication between moving trains and wayside stations for the reason it is confined to definite wire transmission paths from the transmitter to the receiver.

The train telephone system in use by the Pennsylvania on the Belvidere branch combines certain features of radio and wire telephony, utilizing the constant contact with moving vehicles possible by radio and at the same time restricting the transmission paths to railroad property. Railroad vehicles invariably use track rails which extend to all areas requiring communication with moving equipment. Thus the rails offer a most de-

The Bar of Metal Shown Below the Cylinder Is an End of the Receiving Coil. The Equipment Box May Be Seen above the Cylinder

sirable communication transmission path. The rails, together with adjacent communication pole lines, are utilized for the transmission paths and the electronic equipment, electronic tubes, condensers, coils, and the like, on locomotive, cabin cars and wayside stations provide the means of utilizing radio principles in maintaining the constant communication contact so essential to the success of the scheme.

Experimental installation of the Union Train Communication System on the Belvidere branch was authorized in September, 1941, and in June, 1942, a locomotive and cabin car had been equipped, wayside appliances installed and placed in service. To date ten locomotives, and ten cabin cars and one block station have been equipped and an additional block station will soon be in service.

How It Works

It is a carrier telephone system using the upper side band of a 5,700-cycle carrier for transmitting calling signals and voice. The carrier current is fed conductively into the rails, picked up inductively from the rails and induced in the wires of the communication line adjacent to the track. It is carried through the rails and line wires between front and rear ends of trains, from one train to another train and to wayside stations by direct wire connections in the vicinity of the station.

At the sending telephone on the locomotive and cabin car, a circuit is provided by a loop from an insulated truck to adjacent truck via the rails, and a current at carrier frequency is sent out along the rails and adjacent line wires with the return path through the ground. The impedance drop in the rails between the insulated truck and adjacent truck causes the transmitting rail voltage. Receivers pick up the energy which is transmitted through induction coils in proximity of the rails and is amplified and demodulated for reception in the loud speakers and handset telephones.

At the station, the output or transmitting connections from the set, when talking or signaling, are made to a simplex leg of a block line and to the rail system, the circuit being completed by the capacity coupling between the block line and the rails the length of the branch. The receiving connections at the station are made to the track rails at points about 150 ft. apart, the impedance drop of which provides the energy which is amplified and demodulated for reception. There is no interference in operation between this system and radio, telephone or signaling systems.

Train Equipment

The locomotive and cabin car equipment consists of a weather-proof instrument shelter containing electron tubes, condensers, coils, dynamotor, fuses, etc.; a source of power supply; an output transformer; two receiving coils; a loudspeaker; a control box; necessary wiring and conduit.

The equipment box or instrument shelter on the locomotive is located on the running board near the front end, the output transformer is in front of and below the smokebox, the receiving coils are about 4 in. above the top of each rail and located between the engine truck and front drivers, the loud speaker is in the roof of the cab above engineman, the control box with calling button, indication lamps, volume control and handset is in the cab above and in front of engineman.

The equipment box and storage battery in the cabin car are under one of the seats; the output transformer is under the cabin car about midway between the trucks; the receiving coils are about 4 in. above top of each rail between the trucks; loud speaker is in the

The Block Operator Uses the Train Telephone to Call the Crew of a Freight Train Miles Away, to Give Them Operating Instructions

He Carries on a Two-Way Conversation with Both the Conductor and the Engineman—The Loud Speaker Above the Operator Enables Him to Hear Conversations Between the Locomotive and Train Crews of All Trains Operating on the Branch

cupola; control box with calling button, indication lamps, volume control and handset are on a partition of the car. The removable equipment trays in the equipment boxes on locomotive and cabin car are interchangeable. The electron tubes are the same as those used for telephone, radio and other purposes.

Power Supply and Block Station Equipment

The block station equipment consists of a metal cabinet which houses the electron tubes, coils, condensers, rectifier, transformers, etc., for signaling, transmission and reception; a desk stand microphone with calling button and lamp indicator in base and a head band receiver; foot switch for transmission; loud speaker with volume control for reception of calling signals and conversation. When head band receiver is being used, the loud speaker is cut out. The set is normally in receiving condition when turned on.

The power required is about 150 watts for receiving and a maximum of about 550 watts for signaling and talking. It is furnished on the locomotive by the headlight generator, on the cabin car by storage batteries, and at the block station from commercial 110-volt 60-cycle supply.

Track Bonding and Truck Insulation

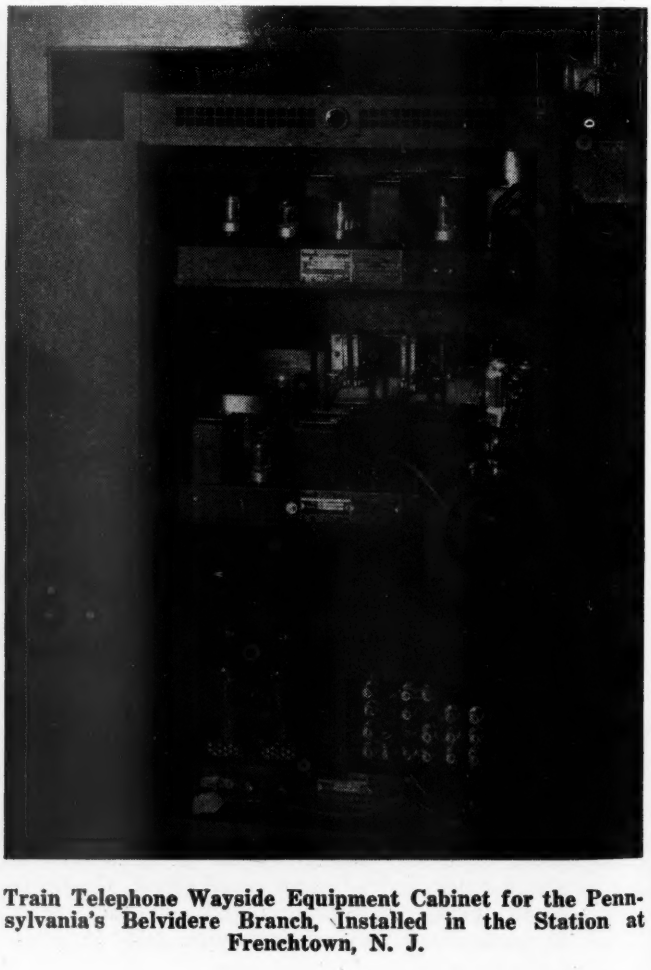
It was found desirable, for the most satisfactory operation, to provide one bonded rail of the main track and to install resistance shunts around all insulated joints.

Insulation of cabin car trucks essential for operation of the telephone system on cabin cars was found to present little difficulty. A design was developed employing ⅛-in. hard fibre to withstand moisture, so placed that no wearing or rubbing surfaces are in contact with the fibre and effectively separating all metal parts through which current could pass from the frame of the cabin car to the wheels to which the transmitting circuit was connected. Insulation of wheels of locomotives was found to present varying problems for different types of locomotives; on the mikado type used on the Belvidere branch, the front engine truck was found to be most adaptable for insulation as has been the case with other types of freight locomotives studied.

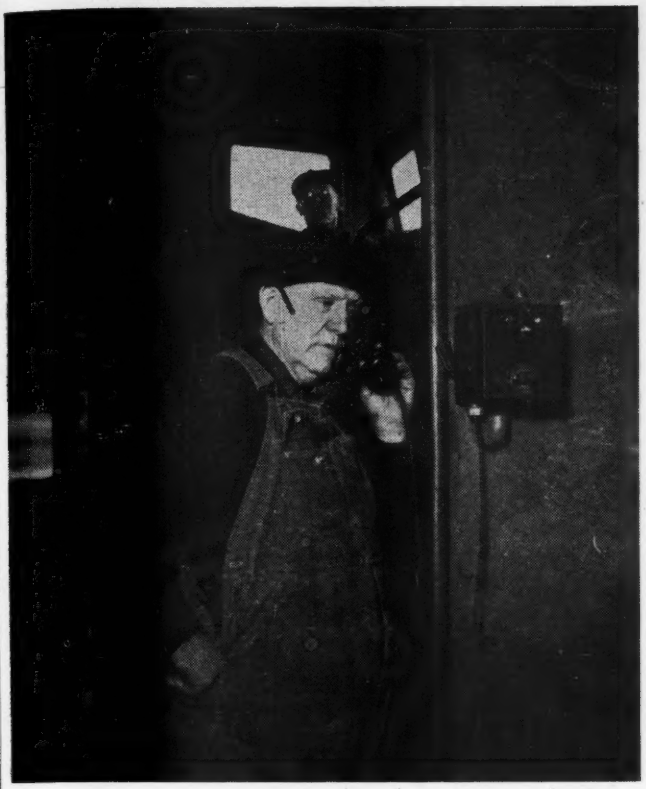
Use of Telephone System in Regular Service

The map shows the portion of the Belvidere branch on which the train telephone is regularly used, namely Trenton to Phillipsburg, a distance of about 50 miles. Equipped locomotives and cabin cars entering the territory at Phillipsburg and at Trenton are tested by the engineman and conductor in conversation with each other and with the operator at Frenchtown. The telephone equipment on locomotives and cabin cars is kept turned on continuously between these two points. When the telephone is to be used, a calling signal is first sent out by means of a push button on the control panel which causes an audible signal to sound in loud speakers of receiving sets at the wayside station and on locomotives and cabin cars within the radius of operation. The person calling, then broadcasts the name of the station or the number of the locomotive of the train, and whether locomotive or cabin car is being called, until response is received and telephone communication estab-

Engineman Using the Train Telephone to Talk with His Conductor at Rear of Train While Train Is Moving Over the Branch



Train Telephone Wayside Equipment Cabinet for the Pennsylvania's Belvidere Branch, Installed in the Station at Frenchtown, N. J.



A Freight Train Conductor Calls a Block Operator Miles Away on the Train Telephone

The Conversation Is Also Heard Clearly by the Train's Engineman—Conversation Can Be Had as Well with Crews of Other Trains.

lished. The telephone conversation between two units is simultaneously transmitted through loud speakers of other units within the radius of operation, any one of which can break into the conversation by calling signal and voice broadcast, should necessity arise.

The range of communication between locomotive and cabin cars of one train with those of another train has been kept within relatively short distances. Good transmission is provided for distances up to about 4 miles; beyond that distance neither safety nor efficiency of operation would be served, in fact it would unnecessarily load the telephones with undesired conversations. Communication between two trains, irrespective of distance, is always possible by relay of messages through the operator at Frenchtown who can communicate with trains anywhere within the territory.

Experience with the daily use of the system on the Belvidere branch has shown numerous advantages, in movements of trains, by reason of the close contact which is constantly available between the train employees on the front and rear of trains and between them and the operator at Frenchtown.

The operator finds out by telephone from the engineman and conductor just what is occurring in their movements, keeps the train dispatcher fully advised and thus facilitates the planning of all train movements affected. When anything unusual happens all persons interested are promptly advised and advantages are taken on the instant, reducing delays which otherwise would occur if wayside telephones had to be used for reporting the circumstances.

Communication between the engineman and conducductor incidental to the movements of their train has been found to improve operations and reduce delays; starting and stopping, switching, setting off and picking up cars, testing air brakes, taking water and coal, handling equipment becoming defective enroute, and many other matters affecting the prompt movement of trains are subjects of telephone conversations carried on daily by the train telephone system.

With traffic density of 10 to 12 through freight trains and 4 passenger trains daily, the installation of automatic block signals has not been found necessary on this line. Since the early days of railroading trains on the Belvidere branch have always been carefully protected by the particularly restrictive form of manual block system standard on the Pennsylvania. With the inauguration of the train telephone great benefit has been derived in handling trains under this manual block system as may be found possible under other signal systems. In fact, the constant contact between trains and the block operator at Frenchtown permits of movements complying with all of the restrictions of the manual block system to be made almost as advantageously as though automatic block signals were in use. Conductors on trains entering sidings or clearing a block previously occupied, use the train telephone to advise the operator; operators use the train telephone to tell the engineman the train may enter main track from siding or enter a block and whether the block is occupied by another freight train. (Opposing trains or a passenger and a freight train, either opposing or following, are prohibited in the same block). It frequently happens that a freight train enters a manual block under permissive signal only a short time before a train ahead clears the block at the other end; with the train telephone the operator is able to call the engineman of the following train and tell him the block is then clear, thus permitting the train to proceed safely at increased speed.

It has been said a railroad signal system is merely a means of communication; the train telephone gives promise of becoming a valuable aid generally in efficiently controlling train movements under all signal systems as well as providing the many other advantages inherent in this new form of communication.

Railroad Participation Would Not Injure Aviation

One of the main arguments advanced for the Lea Bill is that the railroads are said to be against it because they want to have a part in the development of aviation. Since when was that a crime? Are the railroads less patriotic than the airlines? Have they done less to help win the war?

Of course the railroads have competed stubbornly with aviation. What else could they do? They were arbitrarily ruled out of the air. Now they want to fly. What do we want in this country, the development of aviation or merely of the existing airlines?

The railroads are not primarily interested in the big bill commonly known as the Lea Bill (H.R. 1012). This measure omits the question of railroad participation, and would leave the rails on the ground as before. Their entry into flying hinges on the shorter bill (H.R. 3420). This is the point of railroad interest, though it is obviously in their welfare that the entire subject of air transport be considered broadly at one time rather than by piecemeal legislation which might close the door to further action.

Why shrink from facing the issue of whether or not the rails and the steamship lines as well should enter commercial air transport here and abroad? If the answer is in their favor, would airline workers suffer? More lines would mean more jobs and promotions.

Why would it be in the interest of the surface carriers to strangle aviation if they are competing in the business? And how would it make for monopoly to create opportunities for many more airlines than there are today?

—From Aero Digest

Communications . . .

Good Bargain—But for Whom?

CUYAHOGA FALLS, O.

TO THE EDITOR:

Your article which tries to blame the unions for strike threats fails to give one important bit of information. You say the railroads were innocent bystanders. You know that the railroads wrote to Judge Vinson and told him not to agree to the 8-cent increase in pay. He is a good friend of the roads—so he held up the 8-cent raise. If he had agreed to it, there never would have been a delay of over six months.

Some men were getting as low as 46 cents per hour, so there was no danger of inflation. After thirty years of service my new rate is 74.9 cents. My daughter-in-law is getting 88 cents at Goodyear Tire & Rubber. She has less than one year of service. My 9-cent raise covers both the straight and overtime pay. My overtime allowance is 1 cent. Pretty good bargain for some one.

OTTO J. ARTZ.

[Editor's note:—Immediately after the government board in the wage case of the non-operating employees recommended an advance of 8 cents an hour, the leaders of the non-operating unions protested that the advance proposed was not large enough, and representatives of the railways protested to Economic Stabilizer Vinson that it would exceed what was allowable under the stabilization act. At a press conference President Roosevelt emphasized that employees in other fields received time and a half for overtime after forty hours, while railway employees did not.

Subsequently, Mr. Vinson rejected the advance of 8 cents and suggested a sliding scale of advances. Then representatives of management and the labor unions had a conference in which they agreed on 8 cents an hour. Later a new government board recommended advances of 4 to 10 cents, which Mr. Vinson did not disapprove, but which the unions rejected. This would have cost the railways about the same amount annually as a flat advance of 8 cents, and, therefore, Mr. Vinson's failure to disapprove it did not show anything regarding his friendship, or lack of it, for the railways. The non-operating employees finally got from 9 to 11 cents, the part of which is for overtime is a matter of controversy.

Another government board recommended an advance of 4 cents an hour to the operating employees, whereas, as a result of the President's "arbitration," they got 9 cents, the additional 5 cents being "in lieu of overtime" and expenses away from home.

The increase of 8 cents an hour for the non-operating employees and 4 cents an hour for the operating employees originally recommended by the government boards would have cost the railways about $243 million a year. The settlements finally made will cost the railways about $360 million a year—almost 50 per cent or $115 million a year more. "Pretty good bargain for someone," says Mr. Artz—but plainly not the railways.]

Railroad Advertising Not Aggressive Enough

TEXAS

TO THE EDITOR:

The inclosed advertisement* from "Time" appeals to me as an excellent one for the A. A. R. to use in proving that highway carriers overload the roads they don't half pay to use, and for which the railroads are forced to provide by taxation.

It is my opinion that the railroads are too damned polite in their advertisements. If you care to dig back that far, look in the "Saturday Evening Post" of September 18, 1943, for a nasty slap at railroads in an airline advertisement—a masterpiece of innuendo, damnation and ridicule.

The airlines and the aircraft manufacturers are telling the public what they *will* do after the war is over, yet the railroads continue to tell everyone that they *are doing* a magnificent job handling passenger and freight. Surely, but the public knows that now; railroads must tell the story of what they propose to offer in the way of safe, fast, frequently-scheduled transportation—run the pictures of equipment, locomotives, tell the story of C. T. C., tell the story of even faster freight deliveries in '45 and '46 and on.

Let the A. A. R. forcefully, bluntly and honestly tell the story of the present taxation situation which leaves so little for rebuilding the roads after the ruinous wear of present traffic. Let the roads "glamourize" railroads and what they will offer after the war—slug into your competition, now.

ORDNANCE CAPTAIN.

* The writer enclosed an advertisement of a highway trailer concern which portrayed a tractor and semi-trailer, with the load on the latter projecting so far beyond the body of the vehicle that ropes were employed to make it adhere thereto.

New Books . . .

The Evolution of Railways by Charles E. Lee. Second edition, revised and enlarged. 108 pages. 9 in. by 6⅛ in. Bound in boards. Published by The Railway Gazette, London, England. Price 6s.

Anyone familiar with the first edition of this informative little book—which was reviewed in *Railway Age* of May 21, 1938, page 884—will welcome the appearance of the enlarged second edition. In its present form the text of the book departs from the original chiefly in including additional material relating to Greek and Roman rutways and to early British work, particularly the wagonways at Bath and work done by Smeaton about 1756 in connection with the building of the famous Eddystone lighthouse.

Through the many additional illustrations and maps that have been incorporated in this enlarged edition, the author has contributed still further to a wider understanding of the historical development of railway track. While the germ of the railway is traced back to Babylonian times, the author is concerned particularly with evidences of its evolution in Great Britain.

In the course of the discussion, the point is made that the flanged wheel running on a plain rail was an accepted part of medieval mining equipment, and that it was in use in a relatively modern form in England, at Bath, as early as 1734, or many years before the so-called plateway—in which the guiding flange was incorporated in an iron rail—came into use as a form of toll road to accommodate road vehicles. A technical paper setting forth the evidence supporting this pronouncement was the literary parent of the first edition of this book.

The Model Railroader Cyclopedia, compiled by A. C. Kalmbach. Fifth Edition. 184 pages, 27 plates. 10¼ in. by 7 in. Bound in paper or cloth. Published by Kalmbach Publishing Company, Milwaukee 3, Wis. Price $2.50 or $3.00.

The new 1944 edition of the Model Railroader Cyclopedia, like its predecessors, contains plans and information about real railroad equipment for use in building models. The author attempts to include every type of locomotive and car which would be useful for model work. The book is arranged by locomotive types, electric railroad equipment, passenger cars, freight cars, and then right of way and structures. For the benefit of the beginner, this edition includes for the first time short sections of text summarizing the construction of various types of models. Included in the Cyclopedia are 27 large plates, drawn to scale, of actual locomotives and tenders, with details for reproduction as models. Most of these plans are to a scale of ¼ in. equals one foot and others to a scale of 3/16 in. and ⅛ in., so that the model builder can use them with an ordinary architects scale or ruler. In addition, actual locomotive dimensions are shown to give the model builder more accuracy than the reduction of the plate affords.

Railroads-in-War News

Dispute Perfection of Rail Labor Act

House committee splits on a plan to detour Vinson's wage increase vetoes

The House of Representatives last week received from Representatives Bulwinkle and Priest, Democrats of North Carolina and Tennessee, respectively, minority views on the proposed amended version of the so-called Truman-Crosser resolution dealing with railway wage dispute settlements. As noted in *Railway Age* of February 5, page 323, the majority of the House Committee on interstate and foreign commerce has reported an amended version of this resolution (S. J. Res. 91), which would have the effect of exempting wage settlements reached under Railway Labor Act procedures from the veto power over all wage adjustments given the economic stabilization director by executive order implementing the stabilization program. Instead, the National Mediation Board or any emergency board certifying a wage agreement reached under Railway Labor Act provisions would be required to find the terms of the agreement in accordance with the stabilization standards then in effect, and such certification would be final.

What If Unions Except?—The minority objected to this proposal, saying, in part:

"Senate Joint Resolution 91 as amended concerns itself only with the case where there has been a wage dispute, and subsequently both parties agree to abide by a recommendation made by the board which heard the dispute. Likewise, the resolution does not deal with a situation where either of the parties refuses to abide by the recommendation of the board which heard the dispute. And in the only two major railway wage controversies since November, 1941, such a refusal has occurred.

"The resolution as now written permits sporadically created emergency boards to effectuate the wage stabilization program as far as the railway industry is concerned, whereas all other industries are subject to the agencies constantly engaged in carrying out that program. Not only would railroads and railway employees be under different machinery, with different agencies passing judgment, than other industries, but also these employers and employees would be subject to the varying judgments of divers boards as to what is in conformity with the wage stabilization program.

"It can be said that the passage of this resolution will make for additional confusion and misunderstanding both as to labor relations and as to the stabilization program of the government."

Praises Mediation Board—In the majority report supporting the amended resolution, the view was expressed that "The National Mediation Board, of all agencies of the government, is particularly competent to discharge this responsibility [of making a conclusive finding that a wage adjustment is in conformity with the stabilization program]. It is a permanent government agency, and the appointment of its members by the President is subject to confirmation by the Senate. All of its time is devoted to matters concerned with labor relations between carriers and their employees. No other agency is as well qualified by experience to deal with such problems.

"Furthermore, even in time of peace, the National Mediation Board in its efforts to settle wage controversies must be familiar with and understand the commodity and passenger rates and the amount of revenue that the carriers may receive on the basis of such rates. . . . Certainly that board would be better qualified to correct the wage scale than would any temporary board created to regulate wages in all of the industries of the country."

Pulmotor for Ry. Labor Act—Pointing out that the non-op wage controversy, which led to the introduction of the original Truman-Crosser resolution, has been settled, the House committee majority asserted that "developments in connection with its settlement indicate a need for legislative action at this time to insure the continued operation of the Railway Labor Act . . . in accordance with the original purposes of the act. The procedures of the Railway Labor Act have worked admirably for many years so as to bring about satisfactory settlements of wage dispute between carriers and employees. The committee believes that the procedures of the act should continue to be followed and observed in all such disputes, and does not believe that the public interest will be served by departing from such procedures during the present war period."

Ask I. C. C. to End New England Commuter Fare Study

Railroads parties to the Interstate Commerce Commission's investigation of interstate commutation fares in New England, No. 28972, have petitioned the commission to discontinue the proceeding. Petitions previously filed by roads in the New York and Philadelphia, Pa., commutation fare proceedings to the same effect recently resulted in dismissal of those cases by the commission. It was indicated that the roads would not be able to make adequate presentations of their positions, with the necessary statistical studies, during the war.

Wallace "Harangues" Answered by Kunkel

Pennsylvania congressman replies to Vice-President's attack on railroads

Asserting that the time had come to answer Vice-President Wallace's "continuous campaign of propaganda" against the railroads, Representative Kunkel, Republican of Pennsylvania, did so in a February 2 House speech, characterizing Mr. Wallace's October 20 Dallas address as "an astounding harangue" embodying "bald, unproven assertions," which the Vice-President "seized the opportunity to reiterate" in his January 17 talk at the Washington meeting of the Southern Governors' Conference.

Off the Beam—As for himself, Mr. Kunkel has found that "if there is one opinion which is almost unanimous throughout the country, it is that the railroads have been doing and are doing the most stupendously efficient task ever performed by any human organization with the exception of the armed forces." In "attempting to destroy public confidence . . . in the railroads," he said, "it must be admitted that Mr. Wallace has out-Goebbeled Goebbels." Moreover, in view of the "unstinted praise" given the railroads by Army and Navy officials, and the reliance of the services on rail transportation, Mr. Kunkel suggested that the Wallace remarks "might well be construed as an attack on the military."

The Vice-President's Dallas speech was reported in the *Railway Age* of October 23, 1943, page 657, while his January 17 talk was reported in the issue of January 22, 1944, page 257. Mr. Wallace brought the freight-rate situation into another address which he delivered in Los Angeles, Calif., last week, listing "low freight rates" among the farmer's "wants" and "lower and nondiscriminatory freight rates" among things which future development of the far west "will require."

V. P. "Irresponsible"—Representative Kunkel said that he had first planned to answer Mr. Wallace's Dallas attack; but when that speech "fell into the complete oblivion which it deserved," he decided "that it was the policy of wisdom and patriotism to ignore it and forget it." When the January 17 Washington speech came, however, Mr. Kunkel felt that it must be answered, since it could "scarcely be believed" that such a highly placed official "would make such completely irresponsible attacks in public in time of war."

(*Continued on page 360*)

Sees Major Post-War Role for Railroads

Fletcher predicts it, provided the competitive race is made fair

Following through from the "creditable part" they are playing in the "magnificent" drama of wartime production and distribution, the railroads will continue in the post-war period "to make their contribution to the welfare of the nation, provided they are allowed to function with some degree of freedom and upon a basis which will not give their competitors undue advantage." Such was the prediction made by Judge R. V. Fletcher, vice-president of the Association of American Railroads, in a February 10 presentation before the House committee on public building and grounds dealing with post-war problems.

Judge Fletcher made his prediction after preliminary comment wherein he suggested that "sound policy" requires that Congress "make it clear that all forms of transportation should have equality in the matter of regulation, taxation and subsidies." He expressed his view that the railroads would probably survive if all forms of regulation were abolished and the "law of the jungle" made supreme; but he was not advocating relaxation of railroad regulatory measures—he was only "insisting that other forms of transportation be regulated to the same degree, in order that the competitive race may be fair." And he believes that such conditions will not prevail until all forms of transport are brought under the control of the same regulating authority.

Research and Finances—The A.A.R. vice-president touched only briefly on the research program being conducted under his direction by the A.A.R.-sponsored Railroad Committee for the Study of Transportation. "We have," he said, "carried on, in a very intense and practical way, a study of the problems which will probably confront the railroads in the post-war period and our best efforts have been directed to research problems, the solution of which will lead to the adoption of sound and progressive policies."

Meanwhile, however, he had dwelt at some length on the present condition of railroad finances, pointing out that dividends have remained modest, leaving large amounts for reserves and future additions and betterments. He also noted that with respect to taxes the railroad industry "is rapidly approaching the two billion dollar class," the 1943 tax bill having been $1,850,400,000.

Roadway Improvements—"The railroads," he went on, "are mindful of their obligation to accumulate considerable amounts of cash, in order that they may rehabilitate their properties at the end of the war by improving the type of equipment and by making needed changes in roadbed and structures. We appreciate the fact that the period after the war will be one of intense competition and that if the railroads are to hold their own in a fiercely competitive struggle, they must give the country good transportation, meaning thereby transportation that is sufficient, speedy, and cheap. To bring this about, it may be necessary to spend large sums of money in reducing grades, eliminating curves and rebuilding and relocating terminals. As of November 30, 1943, the latest date for which figures are available, the railroads had in their treasuries about $1,750,000,000 in cash and liquid assets. I am very hopeful that they will emerge from the war period with at least $2,500,000,000 available for the purposes stated."

Discussing the post-war traffic outlook, Judge Fletcher referred to pronouncements by economists which indicate "fair prospects for successful business for at least two years after the close of hostilities." As for the distribution of postwar traffic among the various transport agencies, he thought that the roles to be played by motor and water carriers would not be essentially different from their parts in pre-war transportation.

Air Cargo Prospect—After indicating the "variety of opinions" as to the post-war role of air transport, he suggested that "it is reasonably safe to assume that freight traffic cannot move through the air at a cost of less than 15 cents per ton-mile, taking into consideration the cost of collecting and delivering the freight and assuming that the air lines pay a reasonable amount for the use of landing fields and other ground facilities. When this is contrasted with the cost of railroad freight traffic, which is less than one cent per ton-mile on the average, it will be seen that only through the grant of enormous subsidies or as a result of some revolutionary discovery in the field of air transport not yet in sight, will the airplanes be able to compete with the railroads for any freight traffic except articles of light weight, or possibly in the transportation of materials where there is an urgent need for expedition."

Other parts of Judge Fletcher's presentation included a discussion of provisions and finances of the railroad retirement and unemployment insurance systems. With respect to the former he noted that the latest actuarial valuation, as of December 31, 1941, indicated that the payroll tax should at that time have been 10.45 per cent to insure solvency. The present tax is 6½ per cent, paid half by the employees and half by the carriers. To increase it to 10 per cent "would represent a tremendous burden of both labor and management," Judge Fletcher said. And he went on to suggest that pending bills to liberalize retirement benefits should not be enacted unless provision is also made for increased revenue.

Job Insurance Reserve—Coming to the railroad unemployment insurance system, where the three per cent payroll tax is paid entirely by the carriers, Judge Fletcher called attention to the fact that the Railroad Unemployment Insurance Fund has grown to $435,676,000 "of idle money." Since the inauguration of the system, tax collections have amounted to $479,000,000, while benefit payments have totaled only $43,382,000. Meanwhile administrative expenses have amounted to $15,231,000 or "more than one-third of the

(*Continued on page 361*)

Will Review W.F.A.'s Demand for Box Cars

Jones agrees to confer on need for importing Canadian grain now

Senators opposing the daily diversion of 200 United States grain cars to Canada at this time of blocked elevators in the Northwest have wrung from War Food Administrator Marvin Jones an agreement to participate in a reexamination of the situation with a view to determining whether changed conditions warrant modification of importation plans now based on the theory that 40,000,000 bushels of Canadian feed grain required this year can best be brought in if the movement is accomplished before April 30. Mr. Jones' assent to W. F. A.'s joining in further conferences with the Association of American Railroads, the Office of Defense Transportation, and the Interstate Commerce Commission came at a February 7 hearing before the special Senate interstate commerce subcommittee investigating the railroad transportation situation in accordance with Senate Resolution 185.

A "Voluntary" Movement—The public hearing followed similar conferences which had left Mr. Jones unpersuaded that W. F. A. should withdraw its certification that it was necessary to bring in the Canadian grain before April 30. As noted in the *Railway Age* of January 22, page 249, this W. F. A. certification went to the War Production Board, where it was endorsed and passed on to the O. D. T. The latter was in the process of calling for an I. C. C. service order requiring the railroads to deliver 200 cars a day to Canadian lines when the A. A. R. let it be known that the cars would be delivered "voluntarily," upon receipt of a written request from O. D. T. Director Joseph B. Eastman. The cars started going to Canada on the 200-a-day basis January 12, and by this week a total of 4,768 had gone up and 2,161 had returned.

The inconclusive conferences which preceded the February 7 hearing had come out of the previous series of sessions wherein the senators, especially Chairman Wheeler of the committee and Senator Reed, Republican of Kansas, assailed the W. F. A. and O. D. T., Senator Reed threatening to introduce in Congress a resolution taking away W. F. A.'s certifying power unless the present certification were vacated and the railroads left to make what they considered the most expedient arrangements for bringing in the Canadian grain after the domestic situation had been relieved. In agreeing to participate in the new series of conferences, Mr. Jones defended the certification, saying that W. F. A. had certified an actual situation; and it is not disposed to withdraw a statement based on fact.

Jones Seeks Reassurance—With respect to the transportation phase of the matter, the W. F. A. administrator pointed out that Mr. Eastman and A. A. R. Vice-President C. H. Buford had conceded that now is the best time to bring in the Canadian grain, assuming it has to be brought in this year. If changed conditions have altered this Eastman-Buford view, Mr. Jones

is willing to review the situation; but he wants firmer assurances that the grain will be brought in than he got out of the other conferences.

Chairman Wheeler cited the prospects for an early opening of navigation on the Great Lakes this season, suggesting that arrangements might be made for bringing in more Canadian grain via rail-lake routes than had been planned. In that connection, Mr. Eastman pointed out that the limiting factor would be the number of cars which Canadian roads could assign for the movement to the head of the lakes. He conceded the possibility of better utilization if United States cars were lent for such a movement instead of for the present all-rail hauls.

A Drought This Year?—Also, there was some talk of drought conditions which might result in a short domestic crop this season. Such a development, it was pointed out, might cause modification of the theory that car supply conditions are now better than they will be at any other time this year for the movement of the Canadian grain.

Meanwhile, Interstate Commerce Commissioner J. Monroe Johnson had offered for the record letters he had written War Mobilization Director James F. Byrnes, expressing again his view that the wheat wanted by W. F. A. could be got in this country with the expenditure of less transportation; and that the diversion of cars to Canada "because of a possible future shortage of wheat" is placing "a needless burden on our already overtaxed rail transportation."

"Transportation," Mr. Johnson told the O. W. M. director in a January 27 letter, "is at least as essential as wheat. Transportation has long been barely adequate and for the present and the immediate past is quite inadequate.

Transport Shorter Than Grain—"Wheat has long been plentiful beyond our storage capacity and today it is beyond our transportation capacity, nearly 700 elevators blocked. Regardless of supply at source, there is not nor can there be more wheat or guns than may be transported. Should wheat or guns be short at point of consumption, the economical supply is the one requiring a minimum of transportation if transportation is short, and it admittedly is. . . . Wheat will continue to be plentiful beyond the capacity of current transportation unless the United States has a short '44 crop, in which case transportation will be more plentiful than wheat and may economically transport from remote sources of supply."

Mr. Johnson went on to assert that the transportation required to move the Canadian wheat would deliver at points of consumption "more than twice as much wheat from the Dakotas and Montana." He added that W. F. A., while conceding that Canadian roads will not be able to perform their part of the grain movement into this country, insist that American transportation furnish cars for such movement.

Neighborliness Has Limits—"There must be some limit to the consideration we pay our neighbors," the I. C. C. commissioner continued. "There certainly is a limit, and we have reached it, to the burdens that may be placed on American transportation. We are now sending 70 cars per day to Canada for woodpulp. The furnishing of these cars or any cars for tonnage originating in Canada is a Canadian duty."

Commenting on the foregoing in a February 1 letter to Donald Russell, secretary of the War Mobilization Committee, Mark Upson, W. F. A. director of transportation, stressed again the W. F. A.'s determination that the wheat is needed After reading Mr. Upson's letter, Commissioner Johnson wrote again to Director Byrnes on February 4, saying in part:

Upson Poorly Informed—"Mr. Upson is attempting to increase the supply of wheat at destination by transporting from remote rather than from sources in close proximity. That reduces the amount of wheat at consuming points or increases the transportation burden, and even he does not question that transportation is inadequate for the present wheat supply at points of production. He says only one per cent of our grain cars will be used at any one time in this transportation. He knows nothing about our cars and couldn't speak of them in round numbers, much less in percentages.

"Should we have a short wheat crop, the remote wheat might be hauled. If we have a big crop, there will still be insufficient transportation, and the Canadian wheat will not be needed. Transportation devoted now to Canadian wheat is a criminal waste that we will regret. An insufficient supply of wheat is not as serious as an insufficient supply of transportation. We now have the latter. We certainly have not the former."

As the session closed, Senator Reed again paid his respects to the W. F. A. representatives, telling them they were "the slipperiest bunch of gents I ever had to deal with." He added that they had "blundered" into the present situation which "you're not going to correct" unless the committee makes a big enough fuss.

A.A.R., O.D.T. Hold Chicago Session on Labor Shortage

An appeal to the Selective Service Board and the War Manpower Commission for aid in solving the manpower shortage of the railroads will be made by the Association of American Railroads and the Office of Defense Transportation, it was disclosed by Joseph B. Eastman, director of O. D. T., and John J. Pelley, president of A. A. R., following a special meeting of members of A. A. R. and representatives of O. D. T. at Chicago on February 3, called to consider the labor and equipment situation.

They also stated that, through co-operation with the War Production Board, materials will be made available so that the railroads may place orders for freight cars to the capacity, limited by available manpower and war work, of the plants of builders. It was estimated that the capacity will be between 60,000 and 70,000 freight cars in 1944 while later in the year the railroads will be permitted to order not to exceed 500 passenger train cars. A further meeting will be held in Washington to decide which railroads will be allowed, on the basis of needs, to order cars.

In discussing the manpower shortage, Mr. Pelley said that approximately 270,000 men have been taken from the railroads for the armed forces and that they will lose about 84,000 more to selective service within the next six months unless relief is afforded. A more liberal application of deferment of necessary employees will be sought while a request may be made for the release of some railroad workers from military service.

Eastern Oil Situation Tightens

Petroleum Administrator Ickes recently has uttered repeated warnings that the outcome of the petroleum products supply situation on the East coast in the next 90 days will depend on the result of "a race between available transportation and domestic consumption." Because "heavy and continuing military demands" are taking "a big bite out of available transportation," he said, shortages will develop if domestic consumption greatly exceeds what the overland transportation systems can deliver into that area.

According to Deputy Administrator Davies, overland shipments of crude oil and refinery products to the Atlantic seaboard are reaching all-time highs, but the military demand "is enormous and probably will continue to remain so." He pointed out that tank car shipments to that area had increased for the fifth consecutive week to reach a daily average of 720,158 barrels in the week ended January 29. At the same time, drum shipments of kerosene were being increased as rapidly as drums were made available. Because many tank cars have been allocated to meet "increased and unforeseen" military requirements and to service essential industries in other sections, there is little possibility, said Mr. Davies, of more tank cars being made available for East coast civilian use.

Tank Trucks Breaking Down—At the same time, he added, tank trucks are continuing to break down, and many are idle for various reasons. As a result, it has been necessary to shift tank cars from long-haul to short-haul service to replace these trucks. A delay of two months in getting the so-called "Little Big Inch" pipeline into service has contributed to the critical situation, it was explained. The first oil entered this new line at Beaumont, Texas, on January 26, for movement to Norris City, Ill., where it will be transshipped for the present. Operations through to the seaboard are not expected to get under way until March, at the earliest.

In this connection, Mr. Ickes said, "Every oil man, railroad man, barge man, and everyone else who has anything to do with the transportation of petroleum is urged to save every minute in the operation of the facilities with which he is concerned. We cannot interfere with military move-

ments, and we have got to get every ounce of work out of all the facilities that are left us to use."

Meanwhile, on February 4, the Office of Defense Transportation announced that certain permit requirements under its General Order No. 19, applying to petroleum movement on the inland waterways, have been relaxed, due to "changed conditions" in that movement. In general, such traffic northbound on the Mississippi River and on the Illinois waterway system to Chicago, or southward thereon to Peoria, will not hereafter require permits.

Pullman Redemption Rules Found Reasonable by I. C. C.

The Interstate Commerce Commission, Division 3, has found that "for the period of the present war and a reasonable adjustment period thereafter" the Pullman Company's present ticket-redemption rules are not unreasonable. The report in No. 28983 dismisses the complaint, thus following the recommendations of Examiner Alfred G. Hagerty's proposed report which was noted in the *Railway Age* of October 2, 1943, page 532.

The rules provide that refunds will not be made unless unused space is released for resale before departure of the train involved. The complainant, James Flett of Chicago, contended that it was unlawful for Pullman to retain dual charges in cases where other travelers subsequently take space for which the unredeemed ticket had been sold.

Leading up to its finding that the rule is not unreasonable under wartime travel conditions, the commission said that late cancellations "result in much space being unused," whereas the elimination of unused space "would release cars badly needed elsewhere."

Field Staff to Spur Building of Domestic Equipment

In an effort to increase the production of cars and locomotives for *domestic* service, the War Production Board has arranged for the field staff of the Army Transportation Corps to assist in expediting these programs, according to a letter from A. C. Mann, director, Transportation Equipment division, W. P. B., dated February 1, and addressed to all builders of railroad cars and locomotives and to manufacturers of specialties.

The arrangement contemplates that field officers of the Army Transportation Corps will visit the plants of car and locomotive builders to determine the status of the building schedules and analyze any difficulties tending to retard production. These officers will be authorized to iron out, with the builders, any difficulties that may be corrected in the field within applicable priority or other regulations. If W. P. B. assistance is required, such as uprating, additional material authorization, or directive, the field officers will report through the Railway Equipment branch of the Transportation Corps to the Transportation Equipment division of the W. P. B. for handling the matter within the board. Field officers will also handle any surveys necessary to eliminate trouble with the production of component parts.

The letter points out that the scheduling of equipment and component parts under orders L-97, L-97-a, and L-97-d will be handled exclusively by the Transportation Equipment division of the W. P. B., as in the past, and that Army representatives are not authorized to make any changes in these schedules. Neither, will the new expediting arrangement alter the handling of car and locomotive production under Army contracts. The letter adds:

"It is believed that this arrangement with the Army will permit more effective assistance to be granted to manufacturers of cars, locomotives, and components therefor with less interference on the part of plant visitors. It follows, of course, that the Transportation Equipment division will limit the visits of its employes to only those cases where it feels additional assistance, over and above that which can be offered by the Army, is required. The plan does not mean that manufacturers should not communicate direct with the Transportation Equipment division when necessary. However, it would appear that most field service can be consummated through the officers of the Army Transportation Corps and your wholehearted co-operation is requested in giving this new arrangement a fair and thorough trial."

Back in U. S., Col. Okie Tells of Railroading in War Zone

Lt. Col. Fred W. Okie, commanding officer of the 727th Railway Operating Battalion, which saw service in North Africa, was cited for its work in Sicily, and is now in action in Italy, has returned to this country wearing the Legion of Merit, recently bestowed on him by General Dwight D. Eisenhower, and the Order of the British Empire, conferred upon him by King George VI. Colonel Okie reports his outfit is now keeping them rolling on the Fifth Army front.

Life in the 727th, which was sponsored and trained by the Southern, is no lark, the Colonel reports. German demolition and allied precision bombings have smashed road beds, and wrecked classification yards, bridges and stations. Men of this battalion (80 per cent of whom are former railroaders representing almost every railroad in the United States, and two-thirds of whose officers are from the ranks of the Southern Railway) constantly work 36 and 40 hours without rest. They sleep and eat aboard their trains. Especially hard-pressed is the road repair unit, those men frequently being bombed, shelled and strafed. Oddly enough, casualties have been low. As Colonel Okie puts it: "We have had trucks and half-tracks bombed into junk, and locomotives blown up, but somehow my men always crawl out of the wreckage with practically no injuries."

The 727th was one of the first American rail units to operate in North Africa, keeping the Second Corps supplied in its victorious drive against the German Afrika Korps. It operated 200 miles of tracks between Ouled Rhamoun in Algeria and the forward allied base at Tebessa in Tunisia.

"Sometimes," Colonel Okie declared, "we didn't know how they rolled; but they rolled. At the beginning of operations in North Africa, all we had for months were some old French locomotives. They broke down constantly; but we patched them up and they ran, hauling supplies to the front."

"We lost some locomotives in Tunisia before we started to mount anti-aircraft machine guns on the trains," Colonel Okie stated, "but after we showed we had a sting, we didn't lose anything."

Shortly after the first waves of American troops had gone ashore at Licata, Sicily (July 9-10, 1943), the 727th followed. Plans for the campaign called for train operation to start more than a month after the opening of the attack, but within four hours the 727th had a train running, and by the end of the month, supplies were being carried over 300 miles of track across Sicily.

German demolitions had been effective, Colonel Okie reported, and before anything could run, tracks had to be rebuilt, locomotives repaired, and rail yards cleared of debris. At Caltanisetta, Sicily, the 727th had been running trains for 10 days before clearing crews had time to dig bodies out of the demolished stations.

"We had to do a lot of things that weren't in the book," Colonel Okie observed. "At Enna we were running trains practically into the lines. The boys said it was the first time they had brought ammunition up and then heard the infantry shoot it off."

At one port, a train broke down from lack of water, one of the great difficulties of railroading in the Mediterranean area. An LST was unloading stores on the beach nearby. The resourceful engineer, in complete violation of the rules, had the LST pump sea water into the leaky boiler of his locomotive. Then he limped on to the next station where he replaced the salt water with fresh water.

"It wasn't orthodox," concluded Colonel Okie, "but it worked."

Wallace "Harangues" Answered by Kunkel

(*Continued from page 357*)

The Pennsylvanian then proceeded to recount various specific wartime achievements of the railroads, such as the increased volume of freight and passenger traffic, the East coast petroleum movement, and the diversion to the rails of other traffic normally handled by water or highway. "A recent estimate," he said, "indicates that as a result of all such traffic shifts, the railroads have absorbed 90 per cent of the wartime expansion in the nation's freight traffic and 75 per cent of the increase in passenger traffic."

Henry Didn't Help—Mr. Kunkel also cited the railroad safety record, continuing to predict that when the history of the war is written railroad performance "will make its most glorious chapter on the home front." He added that "the only notes of disapproval were the blasts at Dallas and Washington." He also pointed out how War Production Board allocation policies forced the railroads to get along on short rations of materials and equipment. "Nowhere," he went on, "have I ever found any record that the Vice-President, who is a member of the W. P. B., ever pro-

tested against such action or sought to give the railroads the help apparently so vital, except for the positive genius of railroad men and management in overcoming every conceivable obstacle."

Coming to the Wallace attack on rate-making procedures, Mr. Kunkel suggested that the Vice-President took that tack because his inability to point to any physical failure drove him "to the expedient of conjuring up an imaginary picture of a non-existent transportation monopoly, evidently in the hope that non-critical minds, which know as little about the problem as he does, will accept his unverified conclusions that private management of the railroads is oppressing the people of the West and South and stifling the progress of the country."

A Boomerang Heaver—After defending the Interstate Commerce Commission as "the most outstandingly efficient government agency in the history of the United States," Mr. Kunkel continued to point out that the Wallace charges of monopoly come at a time when "railroad freight rates are at the lowest average in a quarter of a century and passenger fares are almost the lowest in history, while railroad taxes and wages are the highest of all time." He also thought it should be remembered that "the railroads are the only completely nonsubsidized form of transportation in the United States."

Concluding, the Pennsylvanian looked into the question of how the Vice-President "suddenly became an expert on freight rates." He found that "at no place" in the official Wallace biography "is there any clue to any specialized study or training or knowledge in this field." Thus Mr. Kunkel compared the Dallas speech with some recent statements by the Antitrust Division of the Department of Justice; and the comparison indicated "that perhaps the Vice-President was shooting bear with other people's bullets." Noting also Mr. Wallace's skill as a boomerang thrower, Mr. Kunkel predicted that in the years to come the Vice-President "will find himself looking back upon these speeches not only as the longest and strongest boomerang throw of his career, but also as the ones exemplifying the most disconcerting accuracy and power of return."

C. N. J. Asks O. D. T. to Approve Passenger Service Revision

At the suggestion of the Office of Defense Transportation, and in order to expedite the movement of vital war freight, the Central Railroad of New Jersey some time ago filed an application with O. D. T. for readjustment of the railroad's passenger service by eliminating 68 trains.

On February 4, when this disclosure was made, William Wyer, the Jersey Central's chief executive officer, reported that thus far the O. D. T. "has not acted on the matter," and that in any case, "it is not expected that all the trains covered in the original application would be ordered discontinued."

The revision, if approved, would at once permit the railroad to divert 62 firemen and trainmen to handling of freight and other war traffic, and there would be a saving of nearly 2,000 tons of coal monthly. Maintenance forces could give their attention to freight locomotives, so badly in need of repair.

For months the railroad has been handicapped by a manpower shortage, with more than 1,000 employees short of minimum needs for the New York metropolitan area alone. Firemen, trainmen and maintenance of equipment forces are wanted most urgently.

Principally affected by the proposals would be the short-mileage trains between Jersey City and Newark, Newark and Elizabeth, and Jersey City and Bayonne, all served by some form of competitive transportation.

Sees Major Post-War Role for Railroads

(Continued from page 358)

benefits paid." [Under the Railroad Unemployment Insurance Act, 10 per cent of the tax collections are allocated to the Railroad Retirement Board for administration of the unemployment insurance system.]

To further show "how unfairly the law is working," Judge Fletcher said that in 1943 the railroads paid, exclusive of the 10 per cent withheld for administrative purposes, the sum of $98,272,000, whereas 1943 benefit payments amounted to only $919,000. He also calculated that "the reserve balance in this fund is more than 45 times the amount of the average annual benefit disbursement during the four and a half years when the system has been in operation."

Then he went on to renew the railroad contention that the law should be amended to reduce the amount of the tax during the period when there is a large sum of idle money in the fund. Specifically, the position of the railroads is that the three per cent rate should apply only when the reserve is less than $100,000,000; that if it is more than $100,000,000 but less than $125,000,000, the rate should be two per cent; and that the rate should be no more than one per cent if the surplus amounts to $125,000,000 or more. In this connection Judge Fletcher called the committee's attention to the fact "that Congress has just provided in the current tax bill that the rate of taxation for Social Security purposes shall be no more than one per cent during the time when there are large balances to the credit of the Social Security Fund."

Economic Development Committee Is Making Progress

The Committee for Economic Development, the nation-wide organization of large and small industry, "voluntarily banded together to avert a threatened disaster"—that of post-war unemployment—now has a membership of 24,500 companies, with local organizations in 1,230 communities, in every state of the Union. This body is now working actively with about 48,000 industrial firms and corporations, whose total output in 1939 represented $41.5 billion, or 73 per cent of America's factory output, and nearly 6 million jobs, or 60 per cent of total factory employment.

Paul G. Hoffman, president of the Studebaker Corporation, and chairman of the board of trustees of C. E. D., in a summary of the committee's activities for 1943, explains that this non-governmental group represents an independent organization of businessmen "who have the common goal of making their maximum contribution toward a post-war national production level 30 to 40 per cent higher than in 1940." This level they expect will provide 7 to 10 million more jobs than in that year. "These men are pooling not only their time, but their money and their technical and business knowledge in this cooperative effort to help achieve such a post-war level."

The local C. E. D. committees have first sought to induce industrial firms to gage their post-war markets and, if possible, to plan for higher peacetime production than ever before. The second broad step is to stimulate similar forward planning by retail and wholesale establishments. The committee's work is educational—informing businesses how they can do the desired job. Information is imparted through handbooks, sound slidefilms, and there are "clinics" and forums dealing with management, merchandising, new materials and designs, and advertising and selling. There is also a national research division, comprised of authorities on economic problems, specialists in such fields as contract termination, fiscal policy, taxation and foreign trade.

Modify Hard Coal Controls

Anticipating an increase in anthracite coal production as a result of Sunday operation of the mines in February, the Office of Defense Transportation has called upon receivers of anthracite in the northeastern states to expedite unloading. "Since there is a limited number of coal cars," said the O. D. T., "it is imperative that receivers of anthracite coal speed up their unloading so that cars will not remain under load for any length of time. In many cases this will mean working the unloading forces on Saturday or Sunday, but the need for coal and cars is so great that the O. D. T. feels impelled to ask all receivers of coal to co-operate in this emergency measure."

On February 5 Solid Fuels Administrator Ickes announced modification of the ban on shipments of anthracite for domestic use west of the Pennsylvania-Ohio line to the extent that half the normal amount may be handled in February and March for use by consumers who are unable to use substitute fuels. In addition, the ban on westward movements of anthracite into Canada was modified to permit points between Lakes Erie and Huron to receive shipments on the same basis as the northeastern region. The limited westward movement is not expected to exceed 50,000 tons monthly, and that to Canada about 5,000 tons.

Regulation No. 14 of the Solid Fuels Administration was made public February 5. It provides for reconsignment, diversion or rerouting of all solid fuels in transit, either by the shipper at the direction of the Solid Fuels Administrator or by that official himself.

The new consignee is required to pay all transportation and other proper charges on such diverted or rerouted coal.

GENERAL NEWS

Co-ordination But Not "Integration"

Truman would have transport agencies work together but not combine

Senator Harry S. Truman, Democrat of Missouri, believes that plans should be made now for a post-war transportation system of integrated operation or co-ordination among the various agencies, but he does not favor what he calls "integration of ownership" as proposed in the Transportation Association of America's plan for a limited number of transportation companies, each authorized to develop and furnish all types of facilities.

Mr. Truman is a member of the Senate committee on interstate commerce and chairman of the special Senate committee investigating the national defense program which made the transportation report reviewed in the *Railway Age* of December 18, 1943, page 981. He gave his views on integration in an address before the Traffic Club of Baltimore, Md., last week.

Remarkable War Record—Before getting into that subject, however, Mr. Truman paid tribute to the transportation industry for its wartime performance, saying that it was "refreshing to one who has been forced to witness so many mistakes" to find a war activity where it can be said of those directly involved: "This job has been well done."

The senator's opposition to the Transportation Association's plan rests on his belief that the proposal "is fundamentally based upon the concept that a permanent level or pattern of transportation has been achieved, and it is now simply a question of organizing its structure and distributing its fruits." To him the plan implies the adoption of the cartel idea which he regards as unsound. Moreover, Mr. Truman would not want "that type of integration of ownership which we have witnessed in the past of which the Van Sweringen railroad empire was an outstanding example. To add trucks, buses, barges, and air lines to such an integrated system would only multiply abuses and increase the damage to the public welfare."

Too Hard on Newcomers—He also suggested that restrictions on entry into the transportation field may already be too rigid—that "possibly the Interstate Commerce Commission may have gone farther than necessary in discouraging the entry of new blood into the body of our transportation system." Meanwhile, the senator's favorable views with respect to "integration of operation or co-ordination" had been set forth in part as follows:

"There are over 750 separate operating railroad corporations in the United States. There has been co-operative action between them in the interchange of equipment and in through rates and through service. Co-operative action is, therefore, proved to be workable without integrated ownership. Such co-ordination can be extended and improved as to the railroads and it can likewise be extended so as to include co-ordination between various modes of transport. . . .

"As I see it, the mechanical means through which progress in transportation will be made, aside from general modernization in equipment and improvement in administrative organization and techniques, center around devices peculiarly adapted to co-ordinated service. . . . Among these devices are unit packaging, standardization of packaging and handling procedures, the widespread use of . . . mechanical means of transshipment between highway, rail and water-borne equipment, such as demountable truck bodies and ferrying operations—and many other means, some of which have not yet even been conceived."

Fined for False Waybill Entry

Secretary W. P. Bartel of the Interstate Commerce Commission has announced receipt of advice that the Chicago & Eastern Illinois on January 28 entered a plea of *nolo contendere* to an information filed in the federal district court at Danville, Ill., charging it with having made false entries in waybills for shipments of livestock from Shelbyville, Ill., in that statements were made therein that single deck cars had been furnished for carrier's convenience when double deck cars were ordered, when in fact no orders for double deck cars had been given. A fine of $500 and costs was imposed.

Greyhound Plans Expansion

Bus operations of the Greyhound Corporation will be expanded through acquisition of Florida Motor Lines if the Interstate Commerce Commission approves an application before it for authority for Greyhound to obtain control of 80 per cent or more of Florida stock. This would be accomplished through exchange of stock in the ratio of 1¾ shares of Greyhound common for each share acquired. Authority was sought at the same time to issue 239,127 shares of Greyhound common, plus whatever further number would be required to acquire any Florida stock beyond 80 per cent that might be offered for exchange on the same basis.

P. & S. Meeting in June

The Purchases and Stores Division of the Association of American Railroads plans to hold its annual meeting at the Palmer House, Chicago, in June.

How to Attain the Public's Approval

Chief executive deemed prime determinant of carrier's standing with public

A report entitled "Public Relations of the Railroad Industry—Principles, Organization and Program," by the Railroad Committee for the Study of Transportation, Subcommittee on Public Relations, has this week been sent by A.A.R. President Pelley to chief executives of all A.A.R. member roads—with the suggestion that chief executives make copies of the report available to all of their officers, and such employees as might be interested.

Every Employee Has His Role—The report—an 8-page booklet—states at the outset that railroad relations with the public rank second in importance to no other aspect of the railroad situation; and, further, that the achievement of such favorable relations is a job for every man on a railroad from president to office boy. Every railroad man is a public relations man. He may be a good one or a poor one—but good, bad, or indifferent his every act determines in some measure the standing of his railroad, and the entire railroad industry, with the public.

It is the way railroad work is done, even more than what is said about railroad performance, which largely determines the public attitude—the report goes on to point out. Among the report's many noteworthy conclusions may be mentioned, in summary, the following:

The primary responsibility for satisfactory public relations rests on the chief executive. He alone has the authority to give the subject the requisite emphasis throughout the organization, and to see to it that this policy is adhered to. To secure adequate attention to this matter, every railroad should have a public relations officer—whose duties lie both inside and outside the organization.

The "Inside" Program—On the "inside," his function is advisory to the various department heads—to assist them in attaining a proper understanding of the goal and the means to attaining it, and in inculcating such knowledge in employees. Since the public relations officer cannot have direct authority over all employees, but can only advise the officers who do have such direct authority, it follows that satisfactory results can be secured only when the entire organization accepts this goal at its proper importance—an end hardly possible of achievement unless the chief executive is conformably imbued.

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Alleghany Corp. to Be Probed by I.C.C.

Wonders if control of C. & O., P.M. and N.K.P. is lawful—Young comments

Upon its own motion, the Interstate Commerce Commission on February 7 entered into an investigation of the control of the Chesapeake & Ohio, Pere Marquette, and New York, Chicago & St. Louis by the Alleghany Corporation, Robert R. Young, and Allan P. Kirby. The preceding was docketed as No. 29085, and assigned for hearing at a time and place to be determined later.

The investigation was ordered, it was indicated, because it appeared that such control "may have been acquired . . . after the enactment, and in violation, of paragraph (4) of section 5 of the Interstate Commerce Act," and that control of these "and other carriers" may be continuing in violation of that paragraph of the statute. If the investigation should result in a finding to that effect, the order further indicated, "said persons, or either of them, and any other person or persons participating," would be required to take such action as the commission considers necessary to "prevent continuance of such violation."

Paragraph (4) of section 5 became a part of the act through the passage of the Transportation Act of 1940. In effect, it requires commission approval of any form of control or management of one carrier by another, or of two or more carriers by any person, corporation or common interest, if effected after the enactment of the paragraph, and the term "control or management" is construed in the statute to include "the power to exercise control or management."

Mr. Young's Statement—Following announcement of the I. C. C.'s inquiry, Robert R. Young made the following statement:

"Alleghany Corporation acquired its interest in the Chesapeake and Ohio in February, 1929, when it acquired indirect control of over 50 per cent of the outstanding common stock of Chesapeake & Ohio.

"Control of the Pere Marquette by the Chesapeake & Ohio was authorized by the Interstate Commerce Commission April 2, 1929. Thereupon the Chesapeake & Ohio acquired 48 per cent of Pere Marquette stock and has since exercised some measure of supervision and control over its affairs. Similarly on December 29, 1937 (subsequent to the Young-Kirby purchase) the Interstate Commerce Commission authorized the Chesapeake & Ohio to acquire control of the Nickel Plate. Pursuant to such authorization Chesapeake & Ohio acquired 56 per cent of Nickel Plate outstanding common stock and thereafter Chesapeake & Ohio has exercised some measure of control over the affairs of that railroad.

"Upon this occasion the Commission was fully advised of the relationship of Alleghany Corporation to the railroads involved.

"Young and Kirby acquired their Alleghany securities from George A. Ball in 1937, at a time when Alleghany's relationship to the Chesapeake & Ohio, Nickel Plate and Pere Marquette had long been firmly established. Shortly after the Young-Kirby acquisition, they appeared before a sub-committee of the United States Senate Committee on Interstate Commerce and fully explained the entire transaction.

"The Act of Congress pursuant to which the inquiry is being made (Interstate Commerce Act, Sec. 5(4) was passed in 1940, long after any of the transactions referred to above. The Act was specifically limited by Congress to acquisition of control *subsequent to the date of its passage.*

"The Interstate Commerce Act has been studied by counsel for Alleghany Corporation, by counsel for the Chesapeake & Ohio, and by personal counsel for Messrs. Young and Kirby. All have reached the unanimous opinion that this situation involves no acquisition of control within the scope of the Act.

"Alleghany Corporation is proud of its achievements for its stockholders and its outstanding record of service to the public since 1937. We are sure that the Commission is as desirous as we are of minimizing the burden of this investigation on railroad personnel.

"This investigation naturally raises the question as to what the Commission's policy is to be concerning the Chesapeake & Ohio's long cherished plan for realizing operating economies and efficiencies through a consolidation with Nickel Plate and Pere Marquette. It is our desire to seek a clarification of these matters with the Commission as soon as possible."

Is Dixie Growing Calmer on Freight Rates?

The Birmingham "Age-Herald" says editorially that "nothing could be more disastrous for the economic welfare of the country than a bitter competition" between various sections of the country on the matter of relative freight rates. It reaches this conclusion after reading a charge by George Mace of the New York Commerce & Industry Association that the Southern governors' efforts to revise the freight rate structure are "a cloak to an attempt to raid Northern industries."

The "Age-Herald" denies that the Southern governors are seeking to incite such warfare; all they really want, it seems, is a "structure fair to all section of the country." The "Age-Herald" concludes that the question is one for the I. C. C. rather than Congress; and the newspaper's columnist, John Temple Graves, notes that "many other newspapers and leaders are substituting this policy of calm examination for crusading against complexities."

W. H. Flynn Resigns as Chairman of Mechanical Division

W. H. Flynn, general superintendent of motive power and rolling stock of the New York Central and chairman of the Mechanical division, A. A. R., has resigned the latter position, which he has held for the last 3½ years, because of the increasing burden incident to this latter office. R. G. Henley, general superintendent of motive power of the Norfolk & Western and vice-chairman of the division, succeeds Mr. Flynn as chairman of the Division.

Pennsylvania Congressmen Hear Rate Bills Opposed

Charles Donley, of Pittsburgh, Pa., chairman of the Pennsylvania State Chamber of Commerce's special committee on transportation, spoke in opposition to pending uniform freight rate bills at a meeting attended by Pennsylvania's Congressional delegation in Washington last week. The meeting was also attended by Massachusetts Representatives McCormack, Democrat, and Martin, Republican, House majority and minority leaders, respectively.

Would Keep C.A.B. Tough on Railroads

Examiners advise adherence to restrictions on entry into air field

The Civil Aeronautics Board should adhere "rigidly" to its present policy of permitting air services by railroads and other surface carriers only when such services would remain "auxiliary, supplemental or incidental to the surface transportation facilities," according to Examiners William J. Madden and Albert E. Beitel, who have made the foregoing one of 11 recommendations in their report on the board's general investigation with respect to the future of local feeder and pick-up air transportation services. The proceeding is Docket No. 857.

RRs "Interpreted" Out of Air—The board's restrictive policy is based on its interpretation of section 408(b) of the Civil Aeronautics Act which, like the similar Interstate Commerce Act provision with respect to acquisitions of motor carriers, stipulates that C.A.B. shall not approve the acquisition of an air carrier by another type of carrier unless it finds that the proposal "will promote the public interest by enabling such carrier other than an air carrier to use aircraft to public advantage in its operations and will not restrain competition."

Where interpretation of the above has been called for in past decisions, the board has asserted its conviction that "a construction of this act which rigidly limits the participation of other forms of transportation in the air field is in harmony with the intent of Congress, and is necessary to attain a full and sound development of our national air transportation system." This language is quoted by the examiners who go on to point out that the board now has before it 70 applications of surface carriers or their affiliates, requesting authority to operate air transportation services.

Favor Grounding RRs Forever—Messrs. Madden and Beitel concede that these proposals might accomplish coordination with surface transportation, but they nevertheless insist that such a set-up is not the only way to accomplish such advantages. Thus, as they put it, "there is no need to recommend a change in the board's interpretation of the act or to consider the necessity for, or to recommend, a change in the law."

At the hearing the surface carriers urged that the board not adopt a sweeping rule that would deny them the right to engage in air transportation simply because they are surface carriers. Among such presentations was that of Thurman W. Van Metre, professor of transportation at Columbia University, who appeared on behalf of a group of western railroads and railroad subsidiaries; and that of the Greyhound Corporation which invited the air lines to participate with bus companies and the public ownership of "a nationwide system of helicopter air buses." These presen-

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Court Tells I.C.C. to Explain Finding

Withholds decision on policy basing minimum weight on vehicle capacity

Because the Supreme Court's "function in review cannot be performed without further foundation than has been made" in the Interstate Commerce Commission's finding in what was referred to as a test case involving the competitive relationship of tariff minimum weights to motor truck capacity, the court on February 7 remanded the case through the lower court to the commission for "sufficient explication" to enable the parties and the courts "to understand, with a fair degree of assurance, why the commission acts as it does."

Rail Basis for Truck Rates—Known as *Eastern-Central Motor Carriers Association* vs. *U. S.*, the case grew out of the commission's affirmation of Division 3's decision in its consolidated I. & S. Nos. M-1216 and M-1445 proceedings, as reported in *Railway Age* of September 12, 1942, page 425. A proposed 30,000 lb. minimum weight basis for lower rate truckload shipments of linoleum was held unreasonable and unduly discriminatory, since that minimum was greater than the capacity of the trucks and therefore would not, as required by the general policy established in rail tariff cases, produce an operating saving as compared to smaller shipments.

This policy, "which condemns all volume minimum rates unless it is clearly shown they will operate at costs per 100 lb. less than the costs incurred at reasonable loading capacity rates," amounts, according to the Supreme Court's majority opinion, as delivered by Justice Rutledge, to adoption, "as a rule of law," of the principle that "only upon a showing of reduction in operating costs may a volume minimum rate be found reasonable and not unduly discriminatory."

Affects Transport Co-ordination—"The problem is novel," the justice said further. "It is not free from complexity, as appears from the commission's hesitant departures from, then its return to, the long-established railroad rule, in inter-carrier situations. Further, the matter is one of general importance. It affects not only shipments of linoleum, but many kinds of shipment and all kinds of carriers within the commission's jurisdiction. It may touch vitally the public interest. It involves, to some extent, the important task of reconciling previously established railroad policies with, or adapting them to, the requirements of the presently effective National Transportation Policy and its application to a co-ordinated transportation system."

The court majority took the view that the case raised several questions that it could not answer with the record then before it. "To tie rate differentials exclusively to minimum weights based on available unit size" might impose unduly burdensome conditions on competition between modes of transportation, Justice Rutledge declared, and "principles previously established for application within a single form of transportation cannot always be transplanted to control its relations with another or those of both with the public generally, without consequences unduly harmful to one or to the public interest."

Wants More Facts—Referring, for example, to the truckers' contention that the 30,000 lb. minimum was needed to meet rail competition, the majority pointed out that "the very fact a rail carload is 30,000 lb. and a truckload 20,000, with rates respectively tied to these weights, may make a life-or-death difference in the competitive struggle."

In remanding the case to the commission, Justice Rutledge remarked that "we do not mean by this to imply that the result the commission has reached would not be sustained if a sufficient basis were supplied in the record. We do not undertake to determine what result the commission should reach. But we cannot say the one at which it has arrived has the sanction of law without further basis than we now have." Having disposed of the case on this point, the majority did not undertake to go deeply into the merits of the other questions raised.

Justice Frankfurter, speaking also for Chief Justice Stone and Justice Reed, did not subscribe to the majority view, however, and his dissenting opinion declared that the court "apparently imposes upon the commission the duty of pursuing . . . complicated and far-reaching investigations every time a motor carrier rate that may have a relation to a railroad rate is found to be discriminatory in relation to another motor carrier rate affecting the same commodity." Again taking issue with the majority, Justice Frankfurter asserted further that the commission "did not adopt an inflexible 'principle that volume minimum rates will be allowed only when geared to a capacity loading which makes possible a real saving in costs of operation,'" since it had held that "the facts in each case must be considered."

Frankfurter's Views—The dissenting justice was disposed to disagree with the majority, too, on the magnitude of the issues involved. What the truckers really were complaining of, he said, was that the commission's finding made it impossible for them to charge a higher rate on 20,000 lb. shipments, where the rail carload rate did not apply, than on 30,000 lb. shipments, the rail minimum. In other words, it had "permitted the motor carriers to compete on an entire equality with the rail carriers," but "forbade discrimination as between linoleum shippers equally placed," which discrimination the truckers contended was excused and legalized by rail competition.

On the basis of the evidence, the commission had held, he pointed out, that the competition for linoleum traffic "does not constitute such a dissimilarity in circumstances and conditions as to render legal the proposed discrimination." The majority nevertheless would require the commission either to explain why the record does not afford justification for discrimination, said Justice Frankfurter, or to "proceed with a full-dress investigation of the entire competitive relations between motor and rail carriers."

Collisions Lead to Show Cause Order

Non-circuited track section creates incomplete signal system, I.C.C. reports

As the result of a collision December 18, 1943, within yard limits at Gallup, N. M., on the main line of the Atchison, Topeka & Santa Fe, the second such accident within four months ascribed by the Interstate Commerce Commission to failure to provide an adequate block signal system at that point, Chairman Patterson for the commission has served on that road a show cause order, allowing it until March 1 to file a return to a requirement that it install continuous track circuits in the territory involved.

In its report on the earlier accident, as noted in *Railway Age* of November 20, page 847, the commission recommended that continuous track circuits be installed at this point. That accident, which occurred on August 20, 1943, was a rear-end collision involving two passenger trains on the westbound main track. The more recent collision resulted when a yard engine, attached to a cut of cars and standing on a crossover so that it fouled the westbound main track, was struck by Third No. 3, a section of the westbound "California Limited." Three employees were killed and 40 passengers and two employees were injured.

Left Hand Operation—At that point the line is double track, with the current of traffic taking the left hand track. Trains moving with the current of traffic were operated by automatic block signal indications, which superseded timetable superiority. Westward train movements were controlled by signal No. 1561, located 6,918 ft. east of the point of the accident, and signal No. 1563, which was 1,749 ft. east of the same point. At a point 2,296 ft. west of signal No. 1563, and 547 ft. west of the point of the accident, the track circuit controlling the operation of these block signals ended, and a non-circuited section extending 3,276 ft. to the west intervened, so that trains within the non-circuited section would not affect the aspect displayed by the two signals nearest it to the east.

The station at Gallup was located within the non-circuited section, and when the collision took place at 1:45 a. m. on December 18 a train—Extra 3231 west—was standing on the non-circuited section of track. A yard engine had been coupled to the caboose at the rear of Extra 3231, and it was standing on the non-circuited track at a point 2,399 ft. west of signal No. 1563, and 650 ft. west of the point of the accident.

Third 3 Was Flagged—While Extra 3231 was standing on the non-circuited track its flagman had gone to the rear to a point about 970 ft. east of signal No. 1563, that it, about 3,370 ft. east of the yard engine at the rear of that train, and placed two torpedoes on the track as a proceed-at-restricted-speed indication to the following train, Third No. 3, against which the standing train was required to provide protection. No instruction restricting the operation of Third No. 3 had been issued. The

flagman then proceeded toward his train, and was at a point about 200 ft. east of signal No. 1563 when he saw Third No. 3 approaching, at which time he placed one lighted fusee on the track and gave stop signals with another.

Meanwhile yard engine No. 1126, attached to a cut of cars, had moved from the eastward main track into a crossover and was standing fouling the westward main track while waiting for a switchman to line the east switch of the crossover—which was set facing point for westbound traffic—so it could pass onto the westward main track. The crossover was within the section of track circuited to control signals 1563 and 1651, and the circuit was so arranged that when either switch of the crossover was lined for movement through the crossover signal 1561 would display yellow—proceed at restricted speed, prepared to stop short of an obstruction—and signal 1563 would display red—stop and proceed at restricted speed. The crossover switches were not equipped with electric switch-locking, but a switch indicator light located at the west crossover switch was controlled by a circuit extending approximately 2½ miles east.

Two Obstructions to No. 3—The foreman of yard engine 1126 was aware that Third No. 3 was expected, and he asserted that the switch indicator light indicated that no train was approaching on the westward track within 2½ miles of the crossover. He did not provide flag protection against westbound trains because he was told that such protection had been provided by the flagman of Extra 3231.

As this situation developed, Third No. 3, consisting of a locomotive and 18 passenger train cars of steel construction, was approaching signal 1561 at about 60 m.p.h. It was dark, and visibility was reduced to about 300 ft. by a heavy fog. Signal 1561 displayed proceed. Continuing, Third No. 3 entered a 3 deg. 6 min. curve to the left on a 0.56 per cent descending grade, and at a point about 900 ft. east of signal 1563 exploded the two torpedoes placed by the flagman of Extra 3231. The engineer made a service brake reduction, and the speed was about 55 m.p.h. when, at a point some 300 ft. east of signal 1563, the flagman's fusees and that signal's red aspect were observed. The engineer moved the brake valve to emergency, and the train's speed had been reduced to about 30 m.p.h. when it collided with engine 1126 at the fouling point of the crossover.

Engine 1126 was derailed to the right and considerably damaged. The locomotive and first six cars of Third No. 3 were derailed; the engine and the second to seventh cars, inclusive, were considerably damaged, while the first car, an express car, was demolished. The engine of Third No. 3 came to a stop to the left of the westward track at a point 213 ft. beyond the point of the collision.

Another Collision Possible—The commission's report describing the accident, which was prepared under the supervision of Chairman Patterson, pointed out that the foreman of yard engine 1126 was in error in thinking the westbound track clear for his train to enter it through the crossover. However, it went on to say, if the crossover switches had been equipped with electric switch-locking, it would not have been possible at that time to line the switches for movement into the westward track, and the collision would not have occurred. But even if this accident had been prevented, there still would have been a collision, the report added, because Third No. 3 would have struck the yard engine standing at the rear of Extra 3231 if it had not struck engine 1126, since the distance separating them was only 650 ft. and Third No. 3 was moving at about 30 m.p.h. when it struck engine 1126.

Such a rear-end collision would have resulted, except for the track being fouled further east, the report explained, because "the automatic block signal system was not complete at this point," due to the existence of the non-circuited portion of track. "No action was taken" upon the recommendation made by the commission in its report of the August 20 accident that continuous track circuits be installed, the present report continued, "and the accident here under investigation resulted. In each case a train was standing on the non-circuited section of the westward main track, and the approaching train received a proceed indication at signal 1561." If continuous track circuits had been installed, it was then pointed out, the approaching train would have received an approach indication at signal 1561, and "these accidents could have been prevented."

Urges Track Circuits—"Two days after the occurrence of the second accident," added the report, "the carrier rearranged the signal system so that after a train has passed beyond the end of the circuited section on the westward main track, both signal 1561 and signal 1563 will display proceed-at-restricted-speed. However, this expedient does not meet the recommendation contained in the former report, nor comply with the intent of the provision of the commission's order of April 13, 1939, that automatic block signals shall be automatically controlled by continuous track circuits." The recommendation in the more recent report is that the road should "install continuous track circuits between signals 1563 and 1561, and at other similar non-circuited sections in automatic block signal system territory on its line."

Plans Complete for Eastman Silver Anniversary Dinner

Joseph B. Eastman, who completes 25 years of service as a member of the Interstate Commerce Commission on February 17, will "defend himself" after hearing four speakers talk about him at his Silver Anniversary Dinner to be held that evening in Washington's Statler Hotel under the sponsorship of the District of Columbia Chapter of the Association of Interstate Commerce Practitioners. Mr. Eastman first became a member of the commission on February 17, 1919, upon appointment by President Wilson; and the Senate has just confirmed his reappointment by President Roosevelt to extend his continuous service until December 31, 1950.

Addresses at the dinner will be delivered by J. Carter Fort, general counsel of the Association of American Railroads, who will speak on behalf of I. C. C. practitioners; Chairman Wheeler of the Senate committee on interstate commerce; Chairman Lea of the House committee on interstate and foreign commerce; and Commissioner Clyde B. Aitchison, who will speak for the commission. Joseph C. Colquitt, chairman of the Practitioners' D. C. chapter, will act as toastmaster; while Warren H. Wagner, president of the Practitioner's Association, will present Mr. Eastman with an illuminated scroll.

Attendance at the dinner is limited to 716, and reservations were closed two weeks ago. Members of the committee on arrangements are Chairman Edward F. Lacey, R. Granville Curry, J. Carter Fort, Mrs. Sarah F. McDonough, Clarence A. Miller, and Karl L. Wilson.

Freight Car Loading

Loadings of revenue freight for the week ended February 5 totaled 806,075 cars, the Association of American Railroads announced on February 10. This was a decrease of 4,987 cars, or 0.6 per cent below the preceding week, an increase of 50,561, or 6.7 per cent above the corresponding week last year, and an increase of 22,113 cars or 2.8 per cent above the comparable 1942 week.

Loading of revenue freight for the week ended January 29 totaled 811,062, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading

For the Week Ended Saturday, January 29 District	1944	1943	1942
Eastern	161,135	151,804	172,850
Allegheny	177,896	160,609	180,823
Pocahontas	56,991	51,003	49,915
Southern	127,037	117,419	128,046
Northwestern	89,795	77,517	96,867
Central Western	125,502	106,937	121,701
Southwestern	72,706	69,381	65,363
	288,003	253,835	283,931
Total All Roads	811,062	734,670	815,565
Commodities			
Grain and grain products	55,815	49,924	47,629
Live stock	15,233	13,261	11,517
Coal	185,813	169,889	155,610
Coke	15,870	15,190	14,569
Forest products	44,518	32,614	48,764
Ore	15,154	14,542	13,342
Merchandise l.c.l.	102,690	88,615	151,786
Miscellaneous	375,969	350,635	372,348
January 29	811,062	734,670	815,565
January 22	798,722	703,294	818,081
January 15	780,220	755,498	811,327
January 8	762,999	717,176	736,972
January 1	643,474	621,173	676,534
Cumulative Total, 5 Weeks	3,796,477	3,531,811	3,858,479

In Canada.—Carloadings for the week ended January 29 totaled 69,070 compared with 69,396 for the previous week, and 58,221 for the corresponding period last year, according to the compilation of the Dominion Bureau of Statistics.

Total for Canada	Total Cars Loaded	Total Cars Rec'd from Connections
Jan. 29, 1944	69,070	37,892
Jan. 22, 1944	70,011	37,858
Jan. 15, 1944	68,105	36,794
Jan. 30, 1943	58,221	36,832
Cumulative Totals for Canada		
Jan. 29, 1944	269,462	146,602
Jan. 30, 1943	226,904	133,601
Jan. 31, 1942	247,326	125,445

Boosts Demurrage Charges on Refrigerator Cars

Acting because the most efficient use of refrigerator cars has been impeded by delays in unloading, resulting in a reduction in the available supply, the Interstate Commerce Commission has issued Service Order No. 180, effective February 11, es-

tablishing new demurrage charges, ranging up to $44 per day, applicable to such cars in both interstate and intrastate commerce.

No change was made in the free time allowance under this order, but the applicable demurrage charges were set at $2.20 per car day or fraction for the first two days beyond free time, $5.50 for the third day, $11 for the fourth day, $22 for the fifth day, and $44 per day for each succeeding day thereafter. The order further provided that refrigerator cars not unloaded shall not be included in any average agreement for demurrage. Unless otherwise provided, the order will expire April 11.

By Amendment No. 1 to Service Order No. 174, effective February 6, that order's restrictions on carriers' acceptance of carload grain shipments consigned to "notify" or "advise" parties located at other than billed destination have been modified to avoid such prohibitions where parties are located at prepay stations, river landings, or certain other inaccessible points.

Service Order No. 179, requiring that certain cars be unloaded at St. Louis, Mo., has been vacated by Service Order No. 179-A.

Service Order No. 181, effective from February 11 to April 11, unless otherwise provided, required railroads to restrict to two times reconsignments or diversions of refrigerator cars loaded with potatoes, other than sweet, and to one the changes made at destination in the name of consignor or consignee or in the place of unloading, except that these restrictions do not apply to changes of name of consignee or consignor en route without a change in the route or destination. The operation of Service Order No. 70, as amended, was at the same time suspended as far as it applies to refrigerator cars loaded with potatoes, other than sweet. The order was made applicable to both interstate and intrastate commerce.

Short 109,000 Employees in January

Unfulfilled needs for personnel of the railroad industry as of January 1 were approximately 109,000 compared with 111,000 on December 1, accordingly to a report of the Railroad Retirement Board. This estimate for the entire industry is based upon reports from 192 employers which showed an existing need for 98,600 additional workers. More acute personnel shortages developed along the Atlantic and Pacific Coasts, but this was more than offset by easier labor supply conditions in the remainder of the country, especially in the Northern areas. Fewer laborers were needed on January 1 than a month earlier, but more trainmen and enginemen and more skilled shop workers were required.

The number of trainmen and enginemen needed was 18 per cent larger than the number reported by the same employers a month earlier. Needs in particular occupations exceeded the December 1 totals by about 800 for brakemen, 350 for firemen, and 300 for switchmen. More than three-fourths of the total needs of 8,800 reported for this group were for additional brakemen and switchmen.

The arrival of several thousand workers from Mexico during December and the expected arrival of several thousand more in January was one reason for the decrease of 3,700 in the needs for laborers. The reported needs for track laborers remained above 40,000.

Unfilled jobs for experienced workers in the skilled trades increased almost 5 per cent above the total reported for December 1. There were some small decreases in the numbers of skilled building tradesmen needed, but a noticeable rise in the demand for skilled shopmen. The need for more helpers and apprentices remained about the same as at the beginning of the preceding month.

Would Keep C.A.B. Tough on Railroads

(*Continued from page 363*)

tations were reported in the *Railway Age* of October 30, 1943, page 699.

Newcomers Welcome to Slim Pickings—In addition to their call upon the board to hold the line against the surface carriers, the examiners recommend that air transportation should be expanded to small cities in part by the addition of points to existing routes and in part by the authorization of services by new feeder carriers; that authorizations to feeder carriers should be based upon a showing of economical operation in which connection maximum mail pay should be fixed at 25 cents per mile; and that expansion of presently operating air carriers should be limited to cities having a metropolitan population of 25,000 or greater "in order to allow a field for the operation of feeder services."

Also, that expansion of pick-up operations should generally be authorized only where a combination pick-up and passenger service will be operated and developed; that "safety regulations for feeder services should permit the carrying of passengers on planes which also render pick-up service, the provision of service with single engine aircraft, and the operation of aircraft with a single pilot"; and that hearings upon applications for authorization of services, which are based essentially on the use of helicopters, should be deferred until such time as commercial helicopters are available.

December Accident Statistics

The Interstate Commerce Commission on February 8 made public its Bureau of Transport Economics and Statistics' preliminary summary of steam railway accidents for December and last year's 12 months. The compilation, which is subject to revision, follows:

Item	Month of December		12 months ended with December	
	1943	1942	1943	1942
Number of train accidents*	1,346	1,461	16,075	13,380
Number of casualties in train, train-service and nontrain accidents:				
Trespassers:				
Killed	111	103	1,723	1,979
Injured	72	95	1,341	1,605
Passengers on trains:				
(a) In train accidents*				
Killed	74	3	205	38
Injured	148	103	2,308	1,195
(b) In train-service accidents				
Killed	1	3	51	53
Injured	188	254	2,657	2,200
Travelers not on trains:				
Killed	1	3	12	20
Injured	110	135	1,121	917
Employees on duty:				
Killed	80	102	988	941
Injured	4,189	3,917	45,778	35,208
All other nontrespassers:**				
Killed	225	219	1,989	2,202
Injured	797	827	6,984	6,983
Total—All classes of persons:				
Killed	492	433	4,968	5,233
Injured	5,504	5,331	60,189	48,108

* Train accidents (mostly collisions and derailments) are distinguished from train-service accidents by the fact that the former cause damage of more than $150 to railway property.

** Casualties to "Other nontrespassers" happen chiefly at highway grade crossings. Total highway grade-crossing casualties *for all classes of persons, including both trespassers and nontrespassers,* were as follows:

Persons:				
Killed	219	203	1,739	1,970
Injured	530	522	4,218	4,616

How to Attain the Public's Approval

(*Continued from page 362*)

The "outside job" of the public relations officer is to interpret the accomplishments of his own railroad—and of the industry as a whole—to the general public, especially to that part of it which has little direct contact with the railroad industry; and which, consequently, cannot be favorably influenced by the superior service which the operating and other departments afford.

Training for Employees—On an individual railroad—aside from the primary requirement of the chief executive's unstinted interest and the appointment of a public relations officer, with "inside" and "outside" duties as outlined in the foregoing—it is noted that an important part of the program consists in public relations training of employees, in which, however, the public relations officer can only advise—not direct. (Attention is directed to the report on public relations training for employees by the Subcommittee on Personnel of the Railroad Committee for the Study of Transportation; see *Railway Age,* January 29, page 267).

State railroad associations should include

January 1 Personnel Needs of Railroads

(Including Only Railroads Which Reported in Both November and December)

Occupational group	Needs reported: Number	Per Cent of Total	Per Cent of December
I. Executive, official and professional	230	0.2	108.5
II. Clerical	1,927	2.0	93.6
III. Maintenance of equipment and stores	28,493	29.2	97.3
IV. Maintenance of way and structures	49,301	50.6	90.5
V. Transportation	16,983	17.4	103.4
VI. Miscellaneous	617	0.6	102.3
Total	97,551	100.00	94,6

News Department continued on next left-hand page

The Locomotives You Buy in 1944

Should Still Be Going Strong In 1964!

And so they will — if they're Lima-built! Locomotives are bought for long years of profitable service — and that points the *paramount* importance of the three factors of correct design, sound materials, and accurate workmanship.

Many of the most important advances in locomotive design were introduced by Lima. And, at war's end, when design restrictions are lifted, the railroads will find that Lima has not stood idly by.

In its selection of materials, Lima has always taken fullest advantage of each technological advance. Today, Lima is already actively studying the most advantageous applications of the new wartime developments in metallurgy.

Lima has continually striven for standards of workmanship approaching as closely as possible to perfection. Today, Lima is constantly searching for new means by which to draw ever closer to this goal.

As in 1944, so in 1946—and for many years thereafter — Lima design, Lima materials, and Lima workmanship will pay rich dividends in service.

LIMA LOCOMOTIVE WORKS LIMA LOCOMOTIVE WORKS INCORPORATED **INCORPORATED, LIMA, OHIO**

public relations officers in their committees and other personnel—so that, wherever feasible, work of these associations may be localized to district and county committees. The goal is that the story of the railroads be interpreted in local areas in terms of each area's concrete interests.

Opinion Surveys Helpful—The report goes on to describe the public relations activities of the Eastern and Western Railway Committees on Public Relations, and to enumerate the wide-spread activities of the public relations department of the A.A.R. It especially draws attention to the opinion surveys conducted by the A.A.R.—a device by which it is possible to measure quantitatively exactly what groups and convictions most need corrective attention.

Among the "outside" public relations activities of individual railroads the following are enumerated (with suggestive comments on the proper use of each): publication and radio advertising; news and feature publicity and other press contacts; booklets, folders, posters; the spoken word; motion pictures; employee magazines.

The report is signed by 28 leaders in the field of railway public relations, serving under the chairmanship of R. S. Henry, assistant to president of the A.A.R.—the signers comprising the subcommittee on this subject, which is working under the aegis of the Railroad Committee for the Study of Transportation.

Modifies Bus Statistics Forms

The Interstate Commerce Commission has revised its forms for monthly reports of revenues and statistics of Class I motor carriers of passengers to include more detailed data. The revision is made effective with the January reports, the principal change being the separation of intercity from local and suburban schedules to reflect statistical data for each.

Intensity of Pullman Car Use—a Correction

The third paragraph in the right-hand column of the article entitled, "Railroads Continue to Pack 'Em In," on page 41 of the January 1 *Railway Age*, the Annual Statistical and Outlook Number, refers to the differences in the intensity of Pullman car use. In 1920 the average was 17.7 passenger-miles per Pullman-owned sleeping and parlor car-miles; in 1941 (not 1943 as given in the third sentence of that paragraph) the average had dropped down to less than 11, and in July, 1943, it had reached a fraction over 20.

History Society's Author Night

A "Book-Author Night" will distinguish the next meeting of the New York chapter of the Railway and Locomotive Historical Society, to be held at 7:45 p. m., February 18, in the Engineering Societies building, 29 West 39th street. A number of well-known railroad writers will contribute to a "railroad horoscope," with each casting his views as to the future of the industry. The guest list includes: Edward Hungerford, S. Kip Farrington, Lucius Beebe, Colonel Robert S. Henry, Christopher Morley, Joseph Bromley, and T. W. Van Metre.

Supply Trade

The **Cochrane Corporation** of Philadelphia, Pa., has been awarded the Army-Navy "E" for production achievement.

Harry K. Werst, a partner in Booz, Allen & Hamilton, management engineers of Chicago, has been appointed vice-president in charge of manufacturing for the **Elastic Stop Nut Corporation of America.** Mr. Werst was associated with the Edward G. Budd Manufacturing Company of Philadelphia, Pa., from 1933 to 1940, as assistant superintendent and later as superintendent of the stainless steel fabricating department, and also a superintendent of the fabricating and construction of stainless steel passenger train cars. He joined Booz, Allen & Hamilton in 1940 as staff engineer, and was elected a partner in January, 1942.

Robert F. Carr, who has been elected chairman of the board of the **Dearborn Chemical Company,** Chicago, as was reported in the *Railway Age* of January 29,

Robert F. Carr

was born at Argenta, Ill., on November 21, 1871, and was graduated from the University of Illinois in 1893. In the following year he entered the employ of the Dearborn Chemical Company and served successively as secretary and vice-president and general manager until 1907 when he was elected president, the position he was holding at the time of his recent election. During World War I, he served as major on the general staff of the U. S. Purchase, Storage, and Traffic division.

George R. Carr, who was elected chairman of the executive committee, was born in Argenta on January 23, 1877 and was graduated from the University of Illinois in 1901. Two weeks after graduation he joined the staff of Dearborn as a salesman and served successively until 1922 as assistant general manager and general manager. In 1922 he was elected vice-president and general manager, which position he has held until his recent election. He is also chairman of the board of the Locomotive Firebox Company.

Robert Adams Carr, who has been elected president of Dearborn, was born in Oak Park, Ill., on September 21, 1903 and was graduated from the University of Chicago in 1926. He entered railway service in the mechanical department of the Southern Pacific in 1927 and a year later he entered the employ of the Locomotive Firebox Company where he engaged in sales and production work. In 1934, he was appointed managing director of Dearborn

George R. Carr

with headquarters at Buenos Aires, Argentina and in 1937, he was elected vice-president of the railroad department of this company which position he has held until his recent election.

S. C. Johnson, who has been elected vice-president in charge of the railroad department of the Eastern division was graduated from the University of Kansas in 1921 and immediately thereafter was appointed assistant bacteriologist in the water laboratory of the Kansas State Board of Health. He entered railroad service on January 1, 1923, as a chemist in the Water Service department of the Southern district of the Missouri Pacific, with headquarters at Little Rock, Ark., which position he held until July 1924 when he resigned to become chief chemist in the water supply department of the Chesapeake & Ohio with headquarters at Huntington,

Robert Adams Carr

W. Va. He entered the employ of Dearborn on January 1, 1930, and has held successive positions in Railroad department as chemical engineer, and assistant vice president.

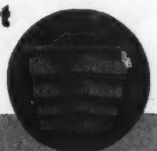
Roger Q. Milnes, who has been elected

News Department continued on next left-hand page

30 CLASS 1 RAILROADS

HAVE INSTALLED 4,181 SECURITY CIRCULATORS

- For Positive Flow of Water Over CENTER of Crown Sheet
- For Reduced Honeycombing
- For Reduced Flue Plugging
- For Reduced Cinder Cutting
- For Better Arch Brick Support



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SECURITY CIRCULATOR DIVISION

vice-president in charge of the railroad department of the Western division, entered railroad service in the car department of the Chicago, Burlington & Quincy at Hannibal, Mo. Later he was employed by the Northern Pacific at Spokane, Wash., as a

S. C. Johnson

fireman and still later as a fireman on the Cripple Creek Short Line. In 1910, he entered the services on the Atchison, Topeka & Santa Fe as fireman and was promoted to engineman in 1914. He resigned in 1924 to become superintendent of fuel and road foreman of the Florida East Coast and resigned in 1927 to join the staff of Dearborn as service engineer. He was

Roger Q. Milnes

promoted to assistant vice-president of the Railroad department in 1936 which position he has held until his recent election.

R. J. Golden has been appointed assistant to the vice-president of the **Pullman-Standard Car Manufacturing Company.**

Howard G. Jones has been appointed New York representative of the **Vulcan Iron Works.** Mr. Jones was formerly located at the company's home office at Wilkes-Barre, Pa.

D. M. Morewood, since 1942 assistant traffic manager, eastern district, of United States Steel subsidiaries, has been appointed assistant to the vice-president in charge of traffic of the **United States Steel Corporation. R. N. Shields,** general supervisor of the eastern district, has been appointed assistant traffic manager, eastern district, of U. S. Steel subsidiaries, to succeed Mr. Morewood; **R. F. Holtz,** supervisor, bureau of rate analyses, has been appointed assistant to the traffic manager, eastern district, and **R. J. Dods,** supervisor of the rate and route bureau, has been appointed general supervisor, traffic department, eastern district.

Walter C. Ahlers, assistant district manager of the Detroit, Mich., office of **S K F Industries, Inc.,** has been appointed Detroit district manager to succeed **Robert H. Hirsch,** who has resigned.

W. H. Holcomb, assistant to the president, has been appointed to the newly-created position of vice-president in charge of industrial relations of the **Baldwin Lo-**

W. H. Holcomb

comotive Works, and **James J. Nelson,** general manager of the company's Cramp Brass & Iron Foundries division, has been appointed vice-president of that division. Following service with the Southern Pacific and the Pacific Telephone & Telegraph Co., Mr. Holcomb joined the Pelton Water Wheel Company, San Francisco, Calif., a Baldwin subsidiary, in December, 1919. After serving in various sales and

James J. Nelson

managerial capacities, he was appointed vice-president and general manager of Palton in June, 1939. He was transferred to Baldwin, as assistant to the executive vice-president, in 1942. Mr. Nelson served as a lieutenant in the Navy from 1912 to 1919, resigning to become assistant to the shipping board member of the Joint Board of Review. Subsequently he was employed as sales manager for the American Manganese Bronze Company. He joined the Cramp Brass & Iron Foundries Co. in 1932 as vice-president and sales manager and when that company became affiliated with the Baldwin group, he continued as sales manager of the Cramp division. He was appointed general manager of the division in August, 1943.

Bennett S. Chapple, Jr., assistant manager of sales, New York district, for the Carnegie-Illinois Steel Corporation, has been appointed assistant to the president of the **Firth-Sterling Steel Company,** of McKeesport, Pa.

S. L. Poorman, eastern manager of the **Westinghouse Air Brake Company,** has been promoted to assistant to the first vice-president with headquarters at the company's general office in Wilmerding, Pa., and **S. L. Williams,** assistant manager for the eastern district, has been appointed manager to succeed Mr. Poorman.

OBITUARY

Robert W. Thomas, treasurer and a director of the Thomas Machine Manufacturing Company, Pittsburgh, Pa., died on February 6. He was 40 years of age. Mr. Thomas entered the Thomas Machine Manufacturing Company, which was founded by his father, following his graduation from the University of Pittsburgh in 1926.

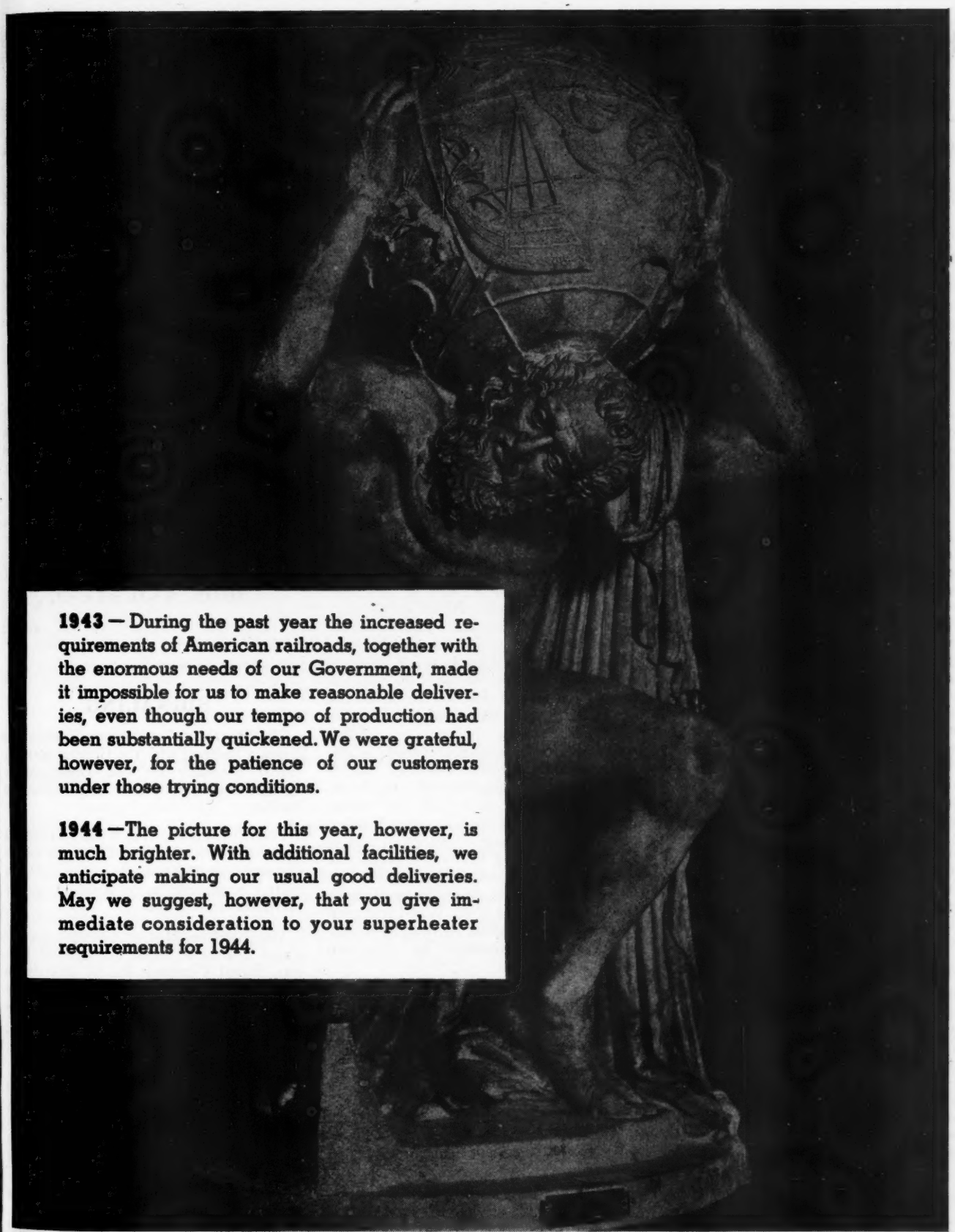
Damon de Blois Wack, executive vice-president of the National Bearing Metals Corporation, a subsidiary of the American Brake Shoe Company, died in St. Louis Mo., on February 1. He was 36 years of age. Mr. Wack was graduated from Yale University in 1929. He entered the American Brake Shoe Company in 1934, and was appointed vice-president of the company's Pacific coast division in 1939. He was transferred to the National Bearing Metals Corporation at St. Louis in October, 1941, and was elected executive vice-president a year later.

Noah A. Stancliffe, general counsel and a director of the American Car & Foundry Company and of the American Locomotive Company, the announcement of whose death appeared on page 333 of the February 5 issue, was incorrectly stated to have been a graduate of Fordham University. Mr. Stancliffe was a graduate of St. Francis Xavier's College, New York. He had received an honorary degree of Master of Arts from Fordham University and the degree of Doctor of Laws from the New York Law School.

Construction

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—This road has completed plans for the construction of a freight house at Seattle, Wash., measuring 400 ft. by 50 ft. and equipped with covered loading platforms on both sides. The project will cost approximately $63,000.

News Department continued on next left-hand page



1943 — During the past year the increased requirements of American railroads, together with the enormous needs of our Government, made it impossible for us to make reasonable deliveries, even though our tempo of production had been substantially quickened. We were grateful, however, for the patience of our customers under those trying conditions.

1944 — The picture for this year, however, is much brighter. With additional facilities, we anticipate making our usual good deliveries. May we suggest, however, that you give immediate consideration to your superheater requirements for 1944.

SUPERHEATERS • FEEDWATER HEATERS
AMERICAN THROTTLES • STEAM DRYERS
EXHAUST STEAM INJECTORS • PYROMETERS

THE SUPERHEATER COMPANY

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THE SUPERHEATER COMPANY, LTD.

Equipment and Supplies

A. A. R. and O. D. T. Discuss New Equipment

Materials may be made available for the construction of about 500 passenger-train cars later this year, it was disclosed by Joseph B. Eastman, director of the Office of Defense Transportation, and John J. Pelley, president of the Association of American Railroads, following a special meeting of members of the A. A. R. and representatives of the O. D. T. at Chicago on February 3, as reported in further detail in the "Railroads in War" news columns herein. It was estimated that between 60,000 and 70,000 freight cars also may be built in 1944, which would be about capacity production for car-building plants, now limited by manpower shortages and war work. A meeting will be held in Washington to decide to which railroads the cars will be allocated.

The discussion of equipment was precipitated at the meeting when Mr. Eastman expressed the "fear" that the railroads are not ordering cars in keeping with their needs and the materials made available by the War Production Board. He was of opinion that the greatest need was for box cars. The railroads, on the other hand, contended that other types of cars, especially hopper cars, should be ordered. They also raised the question of amortization, contending that if cars are ordered for use in the war, the railroads should be permitted to amortize them within five years. Following the meeting, an arrangement was made with the War Production Board under which the railroads will no longer have to prove that the cars are for war use in order to amortize them within five years but will be permitted to do so if they certify that the cars are being bought to aid the war effort and are not for replacement.

During the consideration of the passenger car situation, it was revealed that the lack of air-conditioning equipment was holding up the ordering of passenger cars because railroads felt that it would be uneconomical to build passenger cars with movable windows and other features essential to non air-conditioned operation and, after the war, having to rebuild them to accommodate air-conditioning installations. It was also disclosed that some air-conditioning equipment will be available by the end of the year and railroads were encouraged to place orders for passenger cars now for delivery next year.

LOCOMOTIVES

Post-War Locomotive Demand Seen by Duncan W. Fraser

Commenting on the post-war outlook for locomotives, on February 4, Duncan W. Fraser, president of the American Locomotive Company, expressed the opinion that "there will be a considerable demand for locomotives of all types in the years immediately following the war. In our country 70 per cent of all locomotives are 20 years old or more. Their obsolescence has been speeded by heavy war-time usage and by the fact that locomotives of greatly improved design have been developed in recent years and are ready to serve our railroads with more efficient motive power as soon as conditions permit. We also expect to be busy helping to replace hundreds of locomotives in Europe which have been destroyed in the war."

Foreign demand will be largely for steam locomotives, both in Europe and in other countries where peacetime industrial and railroad expansion is anticipated, Mr. Fraser said. "In the United States, we expect that the Diesel locomotive will occupy an increasingly important position. Its value in switching operations has been firmly established. We may also look for wider applications in heavy freight and passenger service, brought about by the development of more powerful and lighter Diesel engines, with resulting operating efficiencies.

"Progress in steam locomotives has gone hand in hand with Diesel developments. Modern steam locomotives, capable of 20,000 miles per month are now in use, reflecting a high level of availability similar to that of Diesel locomotives. It is unlikely that there will be any one dominant type of locomotive, at least in the foreseeable future. Steam, Diesel and electric, each have their advantages and the selection of motive power is influenced by operating conditions and needs which vary between railroads, and on the same railroad, so that the final choice may be either one or all three from the standpoint of economy and service."

Production of Diesel locomotives by the American Locomotive Company, which reached record proportions last year, is expected to continue at a high rate during 1944, according to Mr. Fraser. Unfilled orders for Diesels are a substantial part of the company's 1944 locomotive production schedule, he said, and production will also include hundreds of steam locomotives as the company's share of the War Production Board's program calling for over 3,000 locomotives to be produced by American builders in 1944.

The CHICAGO & NORTH WESTERN was authorized by the Federal District Court at Chicago on February 5, to spend $2,859,250 for 38 Diesel-electric switching locomotives and one Diesel-electric passenger locomotive. The Court instructed the trustee to make immediate payment for five locomotives already received and to make the total payment by the end of the year. Since the purchase and financing of all but nine switchers had already been approved by the Court, the action was described as an adjustment to bring the program into line with current conditions and mandates of the War Production Board.

FREIGHT CARS

The PERE MARQUETTE has ordered 25 hopper cars of 70 tons' capacity from the American Car & Foundry Co. for second quarter delivery.

The NEW YORK, CHICAGO & ST. LOUIS has ordered 25 hopper cars of 70 tons' capacity from the American Car & Foundry Co. for delivery during the second quarter of this year.

PASSENGER CARS

New York Central Inquires for 237 Passenger-Train Cars

The New York Central has asked for bids on March 14 for the purchase of from 119 to 237 new passenger-train cars, all of which are to be air-conditioned, including the following:

25, 50, 75 or 100	64-reserve-seat cars
25 to 50	56-reserve-seat cars
10 to 20	48-reserve-seat cars
13	32-reserve-seat cars
13	27-reserve-seat cars
4	21-reserve-seat cars
2	baggage-dormitory cars
4	full-length dining cars
4	kitchen-21-seat cars
10 to 18	grill-dining cars
9	dining cars

The MISSOURI PACIFIC has placed an order for six lightweight air-conditioned passenger-train cars, including four 70-passenger chair cars and two 56-passenger chair cars, with the Edward G. Budd Manufacturing Company. The order is subject to the approval of the War Production Board.

IRON AND STEEL

The WESTERN MARYLAND has ordered 1,177 tons of 112-lb. rail from the Bethlehem Steel Company.

SIGNALING

The BALDWIN LOCOMOTIVE WORKS has placed a contract with the General Railway Signal Company for one Diesel-electric Sprague engine equipment for the Southern Pacific.

The LIMA LOCOMOTIVE WORKS has placed a contract with the General Railway Signal Company for 12 intermittent inductive train control equipments to be installed on Pere Marquette locomotives.

The ELECTRO MOTIVE CORPORATION has placed a contract with the General Railway Signal Company for 14 intermittent inductive train control equipments to be installed on Atlantic Coast Line locomotives and another for 8 intermittent inductive train control equipments for installation on Southern Railway locomotives.

The NEW YORK CENTRAL SYSTEM has placed a contract with the General Railway Signal Company for an all-relay interlocking to control a crossing and junction at Reed, W. Va. This order includes the control machine equipped to control 6 signals; type B relays mounted on relay racks, 4 type F dwarf signals, type K transformers, BX rectifiers, and other material required to complete the installation.

The NEW YORK, ONTARIO & WESTERN has placed an order with the Union Switch & Signal Co. covering the materials necessary for the installation of a relay electric interlocking at the crossing of the N. Y. O. & W. with the Erie at Campbell Hall, N. Y., involving a style C all-relay control machine, M-22A switch movements, style R-2 color light signals, relays and housings.

News Department continued on next left-hand page

How's YOUR quota?

...YOUR 4TH WAR LOAN QUOTA

WHETHER your plant meets its quota, or fails, lies largely in *your* hands. Your leadership can put it over—but if you haven't already got a smooth running, hard hitting War Loan Organization at work in your plant, there's not a minute to lose.

Take over the active direction of this drive to meet —*and break*—your plant's quota. And see to it that every one of your associates, from plant superintendent to foreman, goes all-out for Victory!

To meet your plant's quota means that you'll have to hold your present Pay-Roll Deduction Plan payments at their all-time high—plus such additional amounts as your local War Finance Committee has assigned to you. In most cases this will mean the sale of *at least* one $100 bond per worker. It means having a fast-cracking sales organization, geared to reach personally and effectively every individual in your plant. And it means hammering right along until you've reached a 100% record in those *extra* $100 —or better—bonds!

And while you're at it, now's a good time to check those special cases—*growing more numerous every day*—where increased *family* incomes make possible, *and imperative,* far greater than usual investment through your plant's Pay-Roll Deduction Plan. Indeed, so common are the cases of two, three, or even more, wage-earners in a single family, that you'll do well to forget having ever heard of '10%' as a reasonable investment. Why, for thousands of these 'multiple-income' families 10% or 15% represents but a paltry fraction of an investment which should be running at 25%, 50%, or more!

After the way you've gone at your wartime *production* quotas—and topped them every time—you're certainly not going to let anything stand in the way of your plant's breaking its quota for the 4th War Loan! Particularly since all you are being asked to do is to sell your own people the finest investment in the world—*their own share in Victory!*

LET'S ALL BACK THE ATTACK!

This space contributed to Victory by

AMERICAN LOCOMOTIVE

This is an official U. S. Treasury advertisement—prepared under auspices of Treasury Department and War Advertising Council.

The work will be done by the railway company's regular field construction forces.

The MISSOURI PACIFIC has placed a contract with the General Railway Signal Company for a type F, class M, three-wire centralized traffic control system to be installed on 51.0 miles of single track and 9.7 miles of double track between Gurdon, Ark., and Texarkana, the control machine being located at Hope. In addition to the control machine which governs 21 switch machines, 24 switch locks and 77 signals, the order calls for 397 type K and 93 type KB, W & TG relays, 22 type K transformers, 82 rectifiers, 17 housings, resistors and labor and miscellaneous items incidental to the installation of this system.

Abandonments

MIDLAND VALLEY.—Division 4 of the Interstate Commerce Commission by a supplemental report and order has modified its authorization for this road's abandonment of a branch from Excelsior, Ark., to Hartford Junction, 16.7 miles (noted in *Railway Age* of November 6, 1943, page 742), to reserve jurisdiction for 2 years for the benefit of employees who may be adversely affected. This modification resulted from a stipulation between the parties after four train and engine service brotherhoods had requested the commission to reopen the proceedings for this purpose.

MISSOURI-KANSAS-TEXAS.—The recommendation of Examiner Paul C. Albus that the Interstate Commerce Commission authorize this road to abandon a branch applied to the line from Walker, Mo., to Eldorado Springs, 14.04 miles, and not to Excelsior Springs, as was erroneously stated in this column in the issue of January 29.

NASHVILLE, CHATTANOOGA & ST. LOUIS.—This company has applied to the Interstate Commerce Commission for authority to abandon a branch from Union City, Tenn., to Hickman, Ky., 16.57 miles.

PENNSYLVANIA.—Division 4 of the Interstate Commerce Commission has authorized this company to abandon a 1.19-mile branch at Blairsville, Pa.

VOLUME OF AIR EXPRESS carried by Trans-Canada Air Lines in 1943 was nearly 108 times greater than it was during the first year of operation, six years ago. Air mail was 11 times greater and more than 68 times as many passengers were carried.

The "HORATIO ALLEN":—A Liberty ship, now under construction in the yards of the California Shipbuilding Corp., Wilmington, Calif., will be christened the "Horatio Allen," for the man who supervised the building of and drove the "Stourbridge Lion," first locomotive to be run in this country. The locomotive was purchased in England for the Delaware & Hudson Canal Company's railroad, and the first trip was made at Honesdale, Pa. Born at Schenectady, N. Y., in 1802, Horatio Allen was at one time chief engineer of the South Carolina Railroad, and in 1843, president of the Erie.

Financial

AKRON, CANTON & YOUNGSTOWN.—*Merger of Northern Ohio.*—Reorganization of the Akron, Canton & Youngstown was completed on January 27 when the Federal District Court at Cleveland, Ohio, authorized the transfer of property from a trusteeship to the new company, the Akron, Canton & Youngstown Railroad Company, which merges the A. C. & Y. with the Northern Ohio. The consolidation of the two roads establishes a system of 170 miles, extending from Delphos, Ohio, to Mogadore.

ALTON.—*Equipment Trust Certificates.*—Division 4 of the Interstate Commerce Commission has authorized this road to assume liability for $3,675,000 of its first equipment trust of 1944 certificates, carrying a 2¼ per cent interest rate, which have been sold to Harris, Hall & Co. at 99.321, making the annual cost to the road 2.39 per cent. The proceeds are to be applied to the purchase of 750 composite type hopper cars, 500 composite type box cars, and 250 composite type gondolas. The road expects to pay in cash 25 per cent of the total cost of $4,928,017.

BALTIMORE & OHIO.—*Merger of Subsidiaries.*—Division 4 of the Interstate Commerce Commission has approved the merger of the Staten Island into the Staten Island Rapid Transit and the purchase of the Baltimore & New York by the Staten Island Rapid Transit. The B. & O. is the beneficial owner of the three companies, and the transaction is designed to simplify the system's capital structure. In connection with the purchase and merger, the S. I. R. T. has been authorized to issue $1,136,600 of common stock and to assume liability for $1,807,500 of the Staten Island's 6 per cent refunding and general mortgage bonds and $350,000 of first mortgage 5 per cent bonds and $85,500 of improvement mortgage 6 per cent bonds of the B. & N. Y.

ATCHISON, TOPEKA & SANTA FE-CHICAGO, ROCK ISLAND & PACIFIC.—*Acquisition.*—In a proposed report, Examiner W. J. Schutrumpf has recommended that the Interstate Commerce Commission authorize the Oklahoma Railway to abandon operation in interstate commerce of 64.4 miles of line extending from Guthrie, Okla., via Oklahoma City to Norman, including a branch to El Reno, and in connection therewith that it authorize acquisition by the Atchison, Topeka & Santa Fe and the Chicago, Rock Island & Pacific, jointly and individually, of certain segments of the Oklahoma's line, and of trackage rights over other segments, so that substantially all the freight service heretofore performed by the Oklahoma can be continued by them.

The examiner would permit the Santa Fe and Rock Island (1) to purchase jointly the Oklahoma's line from Oklahoma City to Bethany, together with certain trackage in Oklahoma City, amounting altogether to about 15.7 miles, on a portion of which the Oklahoma would continue passenger operations under trackage rights, (2) to acquire by assignment a lease of the Oklahoma City Junction, and (3) to acquire trackage rights over a 0.7-mile line of the Oklahoma. The Santa Fe then would be authorized to acquire trackage rights over 3.4 miles of Rock Island line, and the Rock Island to acquire trackage rights over 1.9 miles of Santa Fe line, all within Oklahoma City. The Santa Fe individually would be permitted to acquire 1.1 miles of Oklahoma line in Guthrie, and the Rock Island individually to acquire 0.28 miles of Oklahoma line in El Reno and 1 mile in Oklahoma City.

All of these transactions would be approved subject to certain conditions in respect to the "neutrality" of traffic on what were the Oklahoma's lines and concerning the status of employees who might be affected.

GRAND TRUNK WESTERN.—*Merger of Subsidiary.*—Division 4 of the Interstate Commerce Commission has approved the merger of the Cincinnati, Saginaw & Mackinaw into this company, in order to simplify the capital structure of the Canadian National system, by which both are controlled indirectly through stock ownership.

NEW YORK CENTRAL.—*Trackage Rights.*—Acquisition by this company of trackage rights over 1.36 miles of the line of the Grand Trunk Western within the corporate limits of Bay City, Mich., has been authorized by Division 4 of the Interstate Commerce Commission.

NEW YORK, NEW HAVEN & HARTFORD.—*Pennsylvania Appeals Plan.*—The Pennsylvania has asked the United States district court at New Haven, Conn., to refer back to the Interstate Commerce Commission the proposed plan of reorganization of New York, New Haven & Hartford. A hearing has been set for February 18.

ST. LOUIS SOUTHWESTERN.—*Trackage Rights.*—Division 4 of the Interstate Commerce Commission has authorized this road to acquire trackage rights over the second of two tracks of the Vicksburg, Shreveport & Pacific for 1.22 miles within the corporate limits of Shreveport, La.

ST. LOUIS SOUTHWESTERN.—*Reorganization.*—The Federal District Court at St. Louis, Mo., on February 8, approved the Interstate Commerce Commission's reorganization plan for the St. Louis Southwestern which reduces its total capitalization from $105,946,995 to $75,000,375. The plan eliminates equities of present preferred and common stockholders and leaves $8,243,764 of creditors claims unsatisfied. Annual fixed interest would be reduced from $3,159,045 to $1,513,731.

Average Prices Stocks and Bonds

	Feb. 8	Last week	Last year
Average price of 20 representative railway stocks..	37.99	37.75	30.57
Average price of 20 representative railway bonds..	84.96	84.58	71.47

Dividends Declared

Chicago Great Western.—5% preferred, 62½¢, payable March 31 to holders of record March 17.

Culver & Port Clinton.—10¢, semi-annually, payable February 25 and August 25 to holders of record February 15 and August 15 respectively.

Green Bay & Western.—$5.00, annually, payable February 21 to holders of record February 11; class A debentures, $50.00; class B debentures, $15.00; both payable February 21.

Pemigewasset Valley.—$1.50, semi-annually, payable February 1 to holders of record February 1.

Railway Officers

EXECUTIVE

Charles V. Smith has been appointed assistant to the president of the Minneapolis, Northfield & Southern, and the Minnesota Western, with headquarters at Minneapolis, Minn.

Thomas B. Puckett has been named president of the Live Oak, Perry & Gulf. He succeeds **M. J. Foley,** who has resigned. **J. H. Kansinger,** general manager, has been named vice-president.

W. H. Edwards, vice-president and general manager of the Lehigh & New England, has been named executive vice-president and general manager of the road with headquarters at Bethlehem, Pa. Mr. Edwards' former position has been abolished.

Orville Bullington, president of the Wichita Falls & Southern, with headquarters at Wichita Falls, Tex., has been elected chairman of the board of directors, with the same headquarters, succeeding **Roy B. Jones,** who has resigned. **Malcolm Putty** has been elected president, replacing Mr. Bullington, and **C. W. Snyder,** secretary, has been advanced to secretary and treasurer, with headquarters as before at Wichita Falls.

Following the completion of the reorganization of the Akron, Canton & Youngstown, **H. B. Stewart, Jr.,** trustee, has been elected president, with headquarters as before at Akron, Ohio. Other changes are as follows: **J. R. Wilkerson,** chief accounting officer and treasurer, elected vice-president in charge of accounting and finance, and treasurer; **K. H. Suder,** chief traffic officer, elected vice-president in charge of traffic; **H. G. Watkins,** chief operating officer, elected vice-president in charge of operations; **H. C. Atkinson,** industrial manager, elected vice-president, industrial, and secretary, and **C. G. Allen,** chief purchases and stores officer, elected vice-president in charge of purchases and stores, all with headquarters at Akron.

FINANCIAL, LEGAL AND ACCOUNTING

A. H. Lobb has been appointed assistant treasurer of the Canadian Pacific with headquarters at Montreal, Que.

Lansing M. Bradish, assistant comptroller of the Pullman Company, with headquarters at Chicago, has retired after 51 years service.

Donald D. Dart has been named assistant to general counsel of the Delaware & Hudson, and has headquarters in New York.

Kenneth A. Carney, district claim agent of the Illinois Central, with headquarters at Chicago, has been advanced to general claim agent of the Northern lines, with the same headquarters, succeeding **William J. Heckmann,** whose promotion to general claims attorney was reported in the *Railway Age* of February 5.

Evan B. Hawken, staff registrar of the Canadian National, has been appointed assistant secretary of the system with headquarters at Montreal, succeeding **G. W. V. Shaw,** office assistant to the president. Mr. Hawken also retains his former position.

OPERATING

H. R. Williams, supervisor of merchandise service of the Southern Pacific, with headquarters at San Francisco, Cal., has been promoted to assistant superintendent of transportation, with the same headquarters. **J. N. Sherbourne** has been appointed supervisor of merchandise service, replacing Mr. Williams.

John C. Gale, assistant to the president, special service, of the Union Pacific, with headquarters at Omaha, Neb., has been promoted to general manager of the Eastern district, with the same headquarters, succeeding **F. C. Paulsen,** who has been granted a leave of absence.

John C. Gale

Mr. Gale was born at Canton, Ill., on February 11, 1880, and entered railway service on July 8, 1905, as a switchman of the Union Pacific at Rock Springs, Wyo. He became a watchman and special agent on the Denver & Rio Grande Western on February 5, 1908, but later that year returned to the Union Pacific as a watchman. Mr. Gale subsequently served as a traveling watchman and an assistant special agent, and on July 15, 1916, he was promoted to special agent of the Nebraska division, with headquarters at Omaha. He was advanced to chief special agent at Omaha on March 1, 1917, and in July, 1938, he was promoted to the position he held at the time of his new appointment.

A. E. Johnson, district rail director, division of railway transport, of the Office of Defense Transportation at Richmond, Va., has been appointed terminal trainmaster of the Norfolk & Western at Cincinnati, O. He succeeds **F. E. Taylor,** who has been named assistant superintendent of the Scioto division at Portsmouth, O., to replace **W. H. Jackson,** transferred to Bluefield, W. Va., to the newly created position of assistant superintendent of the Pocahontas division.

W. O. Franklin, Radford division superintendent of the Norfolk & Western, whose promotion to the position of assistant to the general manager was announced in the *Railway Age* of January 29, was born at Martinsville, Va., on September 25, 1874. He entered the service of the Norfolk & Western in July, 1893, as a brakeman, and was promoted to conductor in 1897. He became assistant trainmaster at Portsmouth, Ohio, in 1904, being advanced to trainmaster of the Scioto division in 1908 and transferred to the Pocahontas division in the same capacity four years later. In 1918, Mr. Franklin was named superintendent of the Pocahontas division, and in 1931 was transferred to the Radford division as superintendent with headquarters at Roanoke, Va. He served in that capacity until his recent appointment as assistant to the general manager. **S. J. Hale,** whose appointment as superintendent of the Radford division succeeding Mr. Franklin was also announced in the *Railway Age* of January 29, was born at Calloway, Va. He entered the service of the Norfolk & Western as an axeman in the engineering department of the Pocahontas division in December, 1906, becoming chainman in 1907. After serving as rodman and transitman, Mr. Hale was advanced to the position of resident en-

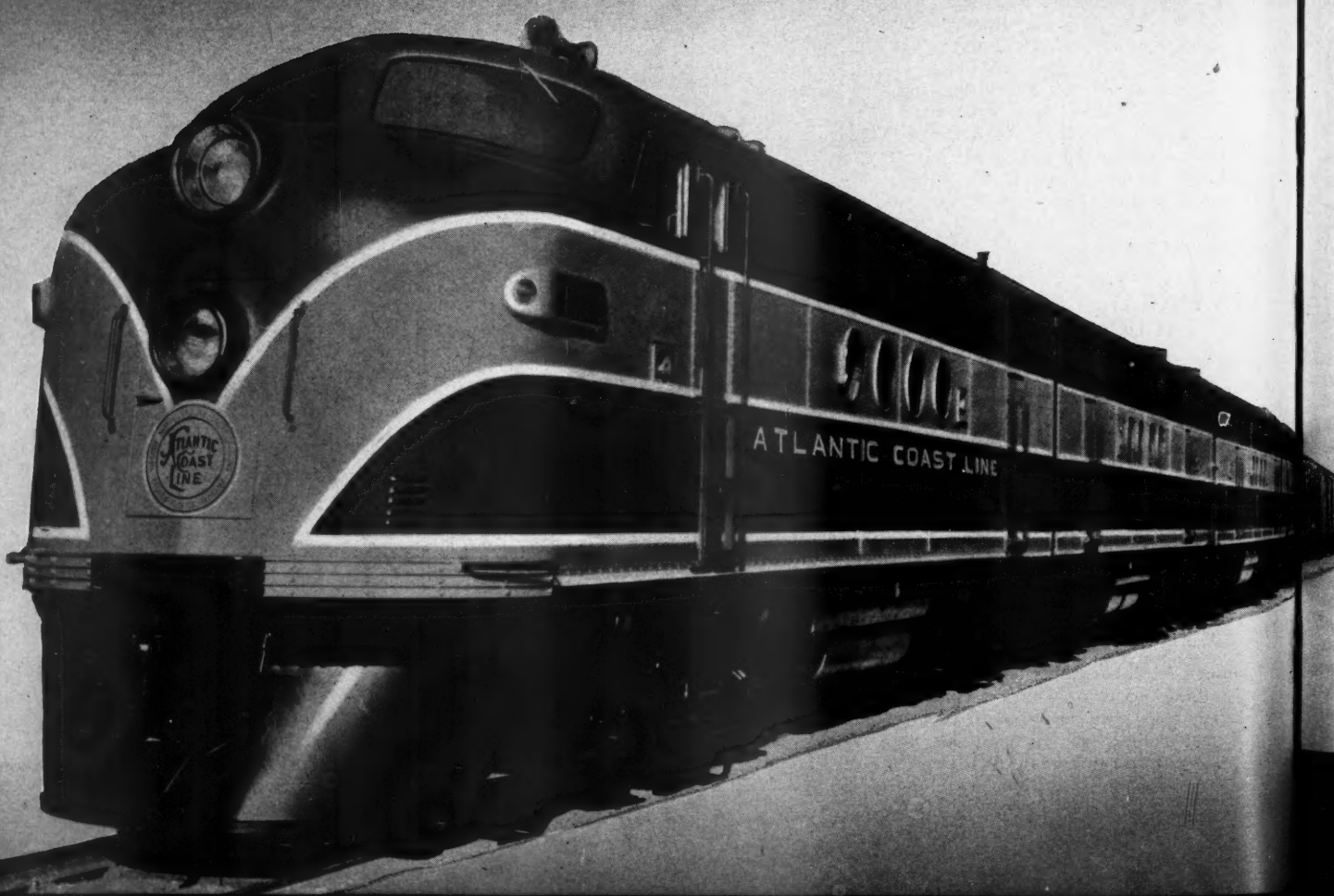
W. O. Franklin

S. J. Hale

News Department continued on second left-hand page

TRIPLE GENERAL MOTORS DIESEL SERVICE

Tools of Peace - Mighty



Weapons of War . . .

MOTIVE power of the Atlantic Coast Line has been materially strengthened by the recent addition of four General Motors 5400 Hp. Diesel Freight Locomotives, with more to follow. These locomotives combine speed for faster schedules, power for greater tonnage capacity, adaptability to varying operating conditions, high availability with fewer stops for fuel, water and servicing. Sturdy, efficient and dependable, GM Freight Diesels have what it takes to meet the exacting transportation demands of war and peace.

Having already definitely proved the superior service and operating economies of GM Diesel Switchers and Passenger Locomotives, the Atlantic Coast Line now joins the fast growing group of railroads using GM Diesel *Triple Service* — Freight — Passenger — Switcher.

★ ***LET'S ALL BACK THE ATTACK — BUY MORE WAR BONDS*** ★

ATLANTIC COAST LINE
VIRGINIA-NORTH CAROLINA-SOUTH CAROLINA-GEORGIA-FLORIDA-ALABAMA

GENERAL MOTORS LOCOMOTIVES

ELECTRO-MOTIVE DIVISION

GENERAL MOTORS CORPORATION — LA GRANGE, ILLINOIS, U. S. A.

gineer in 1917. In 1936 he was appointed roadmaster of the Radford division, and in March, 1938, was advanced to the post of assistant superintendent of the Shenandoah division. Transferred to the Pocahontas division five months later, he was again moved in February, 1942, when he became assistant superintendent of the Radford division. Mr. Hale continued in the latter capacity until his present appointment as superintendent of the Radford division.

W. H. Riddington has been appointed superintendent of car service of the Central Vermont.

T. J. Ward has been appointed general supervisor of terminals of the Baltimore & Ohio, with headquarters at Baltimore, Md.

J. R. Grove, superintendent of motive power of the Lehigh Valley, has added to his duties those of assistant general manager of the road.

A. G. Garrett has been appointed assistant superintendent of the Norfolk division of the Virginian, with headquarters at Sewalls Point, Va.

J. S. Maxwell has been appointed assistant superintendent, Buffalo division, of the Baltimore & Ohio, with headquarters at Punxsutawney, Pa.

W. A. Mordica has been appointed trainmaster of the Chesapeake & Ohio with headquarters at Ashland, Ky., succeeding **E. A. T. Watkins,** who has retired from that position.

Amis D. Satterwhite, chief clerk in the vice-president's office of the Railway Express Agency at Atlanta, Ga., has been appointed superintendent of the Atlanta division of the agency. He succeeds **Joseph P. Johnson,** who has been named superintendent of the Alabama division to replace the late **J. T. Montgomery.**

A. W. Duke has been appointed assistant superintendent freight transportation of the Chesapeake & Ohio, with headquarters at Richmond, Va., and **G. C. Phillips** has been appointed assistant superintendent passenger transportation with the same headquarters. The positions of assistant to superintendent freight transportation and assistant to superintendent passenger transportation, formerly held by Mr. Duke and Mr. Phillips respectively, have been abolished. **E. P. Reynolds,** supervisor merchandise service, has been named to the newly created position of supervisor merchandise and refrigeration service, with **C. P. Epps, Jr.,** as assistant supervisor merchandise and refrigeration service, both at Richmond.

J. H. Darling, assistant superintendent of the 7th and 8th sub-divisions and branches on the Wyoming division of the Union Pacific, with headquarters at Green River, Wyo., has been promoted to superintendent of the Wyoming division, with headquarters at Cheyenne, Wyo., succeeding **F. P. Flesher,** who has been appointed assistant superintendent at Gering, Neb. **E. H. Murphy,** trainmaster at Ogden, Utah, has been advanced to assistant superintendent of the 7th and 8th sub-divisions and branches of the Wyoming division, replacing Mr. Darling, and **E. G. Keep,** terminal trainmaster at Green River, has been promoted to trainmaster of the 8th sub-division and branches.

TRAFFIC

Eugene B. Kelly has been appointed division freight agent of the Southern, with headquarters at Mobile, Ala.

K. C. Gardner has been appointed general agent of the Chicago, Indianapolis & Louisville, with headquarters at Louisville, Ky.

H. L. Sullivan, commercial agent of the Kansas City Southern, with headquarters at Dallas, Tex., has been promoted to general agent, with headquarters at Los Angeles. Cal.

J. T. Kingsley, general agent of the Minneapolis, St. Paul & Sault Ste. Marie at Washington, D. C., has been appointed executive general agent with the same headquarters.

J. O. Morgan, city freight agent of the Chicago, Rock Island & Pacific, with headquarters at Kansas City, Mo., has been promoted to general agent, with headquarters at St. Joseph, Mo., succeeding **J. J. Goodrich,** who has retired after 52 years service.

J. F. Lundberg, traveling freight agent of the Chesapeake & Ohio, with headquarters at Muncie, Ind., has been promoted to division freight agent, with the same headquarters, succeeding **H. F. Shaw,** who has retired.

C. J. Williams has been appointed district passenger agent of the Missouri-Kansas-Texas with headquarters at New York, succeeding **F. R. Grimes,** who is the newly appointed general Eastern passenger agent, also at New York.

George B. Baker, passenger and ticket agent of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Missoula, Mont., has been promoted to general agent, with the same headquarters, succeeding **S. C. Ray,** who has retired.

L. O. Drumwright has been appointed assistant general passenger agent of the Baltimore & Ohio with headquarters at Washington, D. C. **J. L. Hackett** has been named district passenger agent at New York; and **W. P. Cox** and **J. A. Lewis** have been appointed to the position of division passenger agents at Philadelphia, Pa., and Washington, respectively.

L. S. Stitt, city freight agent of the Southern Pacific, Pacific Lines, with headquarters at San Francisco, Cal., has been promoted to district freight and passenger agent, with headquarters at Klamath Falls, Ore., succeeding **C. H. Reeves,** who has been appointed district freight agent at Sacramento, Cal., replacing **G. A. Erickson,** who has been transferred to San Francisco.

R. E. Schaffert, traveling freight and passenger agent of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Portland, Ore., has been promoted to district passenger agent, with headquarters at Tacoma, Wash., a newly-created position. **J. G. Cain,** city passenger agent, with headquarters at Spokane, Wash., has been advanced to district passenger agent, with the same headquarters, a change of title.

James P. Branagan, whose appointment as district traffic manager of the New York, New Haven & Hartford at Pittsburgh, Pa., was announced in the *Railway Age* of January 8, was born at Millsbury,

James P. Branagan

Mass., on June 25, 1886. In June, 1905, he entered railway service, becoming successively telegrapher, ticket agent, and freight agent in the operating department of the New York, New Haven & Hartford until November 1, 1915, when he entered the traffic department as chief clerk to the general freight agent. After filling the post of traveling freight agant, he became general agent at Pittsburgh in March, 1922, and was appointed general western freight agent in September of the following year. In March, 1935, Mr. Branagan became general traffic agent at Pittsburgh, continuing in that position until his recent appointment as district traffic manager with the same headquarters.

Leon A. Veroneau, whose promotion to general freight agent of the Grand Trunk Western, with headquarters at Chicago, was reported in the *Railway Age* of January 8, was born at Chicago on April 19, 1887, and entered railway service on October 1, 1902, in the freight claim office of the Grand Trunk Western at Montreal, Que. He served in various clerical capacities at Montreal until 1906 when he was advanced to secretary to the assistant chief engineer, with the same headquarters. In the same year he went with the New York Despatch Refrigerator Line (then part of the G. T. W. but since abandoned), as a clerk of the superintendent, with headquarters at Chicago. A short time later Mr. Veroneau was appointed a clerk of the freight tariff bureau of the Grand Trunk Western, with the same headquarters, and during federal administration he served as chief clerk of the consolidated staff under the assistant general freight agent. On May 1, 1919, he was transferred to the freight tariff bureau at Chicago, and in July, 1920, he was promoted to assistant general freight agent, with the same headquarters, holding that position until his new appointment.

ENGINEERING & SIGNALING

R. P. Puddester has been appointed assistant superintendent maintenance of way, of the Newfoundland.

A. P. Button, engineer of grade crossings of the New York Central, Lines West of Buffalo, with headquarters at Chicago, has been promoted to designing engineer, with the same headquarters.

H. Smolka, machine shop foreman of the New York Central, Lines West of Buffalo, with headquarters at Ashtabula, Ohio, has been promoted to maintenance of way shop superintendent, with headquarters at Elkhart, Ind., succeeding **Philip J. Jones,** who has retired after 40 years service.

I. H. Schram, acting chief engineer maintenance of way of the Erie, with headquarters at Cleveland, Ohio, has been appointed chief engineer maintenance of way to succeed **J. C. Patterson,** who has retired after 30 years of service with this company. **C. K. Scott,** acting engineer maintenance of way of the Eastern district, with headquarters at Jersey City, N. J., has been appointed engineer maintenance of way of that district to succeed Mr. Schram. **Blair Blowers,** acting engineer maintenance of way of the Western district, with headquarters at Youngstown, Ohio, has been appointed engineer maintenance of way of that district. He succeeds **H. M. Righter,** who is on leave of absence and will be assigned to other duties. All these changes became effective on February 1.

MECHANICAL

C. W. Matthews has been appointed assistant superintendent of machinery of the Louisville & Nashville with headquarters at Louisville, Ky.

W. S. Davis has been appointed superintendent of motive power and car equipment, Northern Ontario district, of the Canadian National, with headquarters at North Bay, Ont. He succeeds **J. F. Smith,** who has retired from the position.

A. N. Campbell, assistant foreman of the coach yards of the Canadian National at Toronto, Ont., has been appointed mechanical inspector (car), with headquarters at Montreal, Que. He succeeds **J. Brooks,** who recently retired under pension regulations.

Fred K. Murphy, whose retirement as superintendent of equipment of the Cleveland, Cincinnati, Chicago & St. Louis, (Big Four), with headquarters at Indianapolis, Ind., was reported in the *Railway Age* of February 5, was born at Kokomo, Ind., on January 3, 1874, and entered railway service on March 25, 1892, as a machinist apprentice of the Big Four at Indianapolis. In May, 1898, he went with the Illinois Central as a machinist and a short time later he was promoted to foreman, with headquarters at Paducah, Ky. One year later, Mr. Murphy became a machinist foreman of the Detroit Southern (street railway), with headquarters at Springfield, Ohio, and in July, 1901, he returned to the Big Four as a machinist at Bellefontaine, Ohio, being advanced to air brake instructor, with headquarters at Indianapolis in 1906. He subsequently served as air brake supervisor, master mechanic and assistant superintendent of motive power, with the same headquarters and on July 1, 1936, he was advanced to assistant superintendent of equipment. On January 1, 1938, he was promoted to the position he held at the time of his retirement.

SPECIAL

Raymond F. Blosser, head of the Cleveland Associated Press Bureau, has been named director of information of the Central of New Jersey.

William D. Beck, district manager of the Car Division of the Association of American Railroads, with headquarters at Chicago, will retire on March 1, after 20 years' service

R. H. Short, ticket agent of the Nashville, Chattanooga & St. Louis at Chattanooga, Tenn., has been promoted to superintendent of safety, with headquarters at Nashville, Tenn.

George H. Hill, Boston newspaper and news association photographer, has been appointed official photographer for the Boston and Maine, with headquarters in Boston. He will be attached to the public relations department and will act also as staff photographer for the railroad's employees' magazine.

Mr. Hill has been a staff photographer for the Boston *Herald-Traveler* and the Boston *Globe*. In 1922 he became staff photographer and New England manager for the New York *Times*-Wide World Photo Service. In 1941, when that service was sold to the Associated Press, Mr. Hill continued in the same position under the A.P. until he resigned to take his new position with the railroad.

PURCHASES AND STORES

G. T. Wickstrom, assistant general purchasing agent of the Union Pacific, with headquarters at Omaha, Neb., has been promoted to general purchasing agent, with the same headquarters, succeeding **E. L. Fries,** who had retired after 56 years service. **A. C. Card,** assistant to the general purchasing agent at Omaha, has been advanced to assistant general purchasing agent, replacing Mr. Wickstrom.

G. T. Wickstrom

Mr. Wickstrom was born at Omaha on April 26, 1897, and entered railway service in 1915 as a clerk-accountant of the Union Pacific, subsequently serving as assistant chief clerk and chief clerk of the vice-president in charge of purchasing, engineering and standards, with headquarters at Omaha. In 1932 Mr. Wickstrom was promoted to assistant to the general purchasing agent, with the same headquarters, and in 1939 he was advanced to the position he held at the time of his new appointment, effective February 1.

Mr. Fries was born at Omaha in 1874, and entered railway service in 1888 in the accounting and stores department of the U. P. In 1917 he went with the Chester Shipbuilding Company, Chester, Pa., as general purchasing agent and assistant to the vice-president. Later he served in a similar capacity for the Merchants Shipbuilding Corporation, Bristol, Pa. From 1921 to 1926 Mr. Fries was associated with the United States Shipping Board and in 1929 he became vice-president and general manager of China Airways, with headquarters at Shanghai, China. In 1937 he returned to the Union Pacific as special representative of the executive vice-president, with headquarters at Omaha, being promoted in the same year to the position he held at the time of his retirement.

OBITUARY

Brooks H. Stanage, assistant chief traffic officer of the St. Louis-San Francisco (Frisco), with headquarters at St. Louis, Mo., died in that city on February 4.

D. P. Carey, assistant general mechanical superintendent of the New York, New Haven & Hartford at New Haven, Conn., died on February 5.

Frank Ringer, chief engineer of the Missouri-Kansas-Texas, with headquarters at St. Louis, Mo., died at a hospital in the city on February 6, at the age of 74.

Thomas F. Lowry, who retired in 1940 as assistant general manager of the Lines West of the Northern Pacific, with headquarters at Seattle, Wash., died at his home in that city on January 20.

M. H. Phillips, general accountant of the Coast Lines of the Atchison, Topeka & Santa Fe, with headquarters at Los Angeles, Calif., died in a hospital in that city on January 30.

Norman H. Asp, assistant manager of the refrigeration department of the Atchison, Topeka & Santa Fe, with headquarters at Los Angeles, Calif., died suddenly on February 3, at Phoenix, Ariz., while on a business trip.

TO RE-ESTABLISH UNIONS IN LIBERATED EUROPE.—To assist in the re-establishment of transport labor unions in countries liberated from fascism and nazism, the Swedish railroad workers', transport workers' and seamen's unions have agreed to contribute 127,000 kroner (about $30,000) to the International Transport Federation, according to recent advice from the American-Swedish News Exchange.

Table of Operating Revenues and Expenses appears on next left-hand page.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1943

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1943	Net railway operating income 1942
Akron, Canton & Youngstown	Dec.	171	$367,211	$143	$383,553	$74,566	$42,561	$19,677	$123,327	$275,022	71.7	$108,531	$55,927	$43,764	$68,612
	12 mos.	171	4,316,452	1,836	4,500,270	691,556	417,720	209,669	1,216,996	2,706,338	60.1	1,793,932	1,154,171	975,585	644,810
Alton	Dec.	959	1,983,044	792,396	3,100,235	528,421	688,005	92,433	1,476,303	2,953,899	95.3	146,336	500,902	260,634	1,192,726
	12 mos.	959	24,726,203	8,719,099	37,177,317	4,229,870	5,191,036	736,964	11,537,881	23,174,595	62.3	14,002,722	6,593,191	3,782,283	3,654,310
Atchison, Topeka & Santa Fe System	Dec.	13,147	31,071,859	9,371,679	44,448,642	4,946,324	6,045,206	676,086	11,544,956	23,736,774	53.4	20,711,868	6,434,407	6,429,672	9,334,575
	12 mos,	13,151	333,838,283	103,803,803	471,119,015	51,800,557	70,068,740	6,794,118	120,956,580	256,456,095	54.4	214,662,920	69,793,282	65,839,748	83,547,609
Atlanta & West Point	Dec.	93	195,183	169,859	459,566	53,044	57,992	10,686	203,460	345,132	75.1	114,434	61,847	26,364	35,164
	12 mos.	93	3,094,041	1,673,597	5,278,915	514,493	536,527	114,297	1,721,468	3,086,819	58.5	2,192,096	825,080	465,001	612,244
Western of Alabama	Dec.	133	194,027	172,277	450,103	55,706	63,337	11,319	163,691	311,242	69.1	138,861	50,931	46,786	20,762
	12 mos.	133	3,150,518	1,734,083	5,342,133	567,078	612,362	123,468	1,620,031	3,106,053	58.1	2,236,080	782,526	659,911	805,357
Atlanta, Birmingham & Coast	Dec.														
	12 mos.														
Atlantic Coast Line	Dec.	4,962	8,360,474	3,721,443	13,258,378	1,229,357	2,159,413	120,460	4,471,799	8,819,347	62.7	4,939,031	1,939,031	1,540,828	2,054,404
	12 mos.	4,966	102,560,157	41,800,985	153,601,015	12,195,507	20,526,156	2,119,188	42,554,306	81,782,633	53.2	71,818,382	20,568,382	15,704,857	21,195,567
Charleston & Western Carolina	Dec.	343	358,205	27,681	394,684	44,894	58,360	10,450	93,048	212,564	53.9	182,120	77,120	83,181	72,881
	12 mos.	343	4,106,534	162,664	4,354,273	522,362	630,187	126,923	1,321,954	2,669,453	61.3	1,684,820	784,820	800,097	873,595
Baltimore & Ohio	Dec.	6,143	23,733,392	3,857,419	29,225,892	7,012,838	9,010,236	886,406	12,686,229	31,354,497	107.3	—2,128,605	—5,450,717	—6,238,533	14,969,518
	12 mos.	6,148	299,636,856	39,755,440	358,142,152	46,206,421	70,756,830	6,000,423	115,462,272	250,584,352	70.0	107,557,800	61,099,841	52,167,469	69,558,718
Staten Island Rapid Transit	Dec.	24	244,130	102,358	354,670	24,735	580	987	95,125	156,476	44.1	198,194	—18,515	—33,808	54,430
	12 mos.	24	2,791,515	1,389,949	4,286,161	445,704	360,355	14,437	1,282,203	2,373,902	55.4	1,912,259	1,207,420	1,028,583	417,611
Bangor & Aroostook	Dec.	602	841,708	78,289	951,091	48,147	119,301	6,605	231,364	436,065	45.8	515,026	211,578	231,728	254,439
	12 mos.	602	7,367,185	972,258	8,704,872	1,349,125	1,280,824	85,534	2,184,455	5,281,055	60.7	3,423,817	1,528,456	1,790,160	1,516,473
Bessemer & Lake Erie	Dec.	214	1,053,700	1,980	1,072,750	225,888	979,299	13,810	392,705	1,810,652	168.8	—737,902	—25,220	218,797	174,784
	12 mos.	214	19,584,815	23,352	19,766,661	1,853,675	9,199,814	156,890	3,813,150	15,651,218	79.2	4,115,443	787,832	2,600,905	3,635,912
Boston & Maine	Dec.	1,819	4,934,025	1,371,118	6,951,209	734,762	1,242,657	76,823	2,724,175	4,971,789	71.5	1,979,420	1,047,042	742,530	2,543,741
	12 mos,	1,822	59,694,792	19,015,883	86,325,775	12,828,170	13,428,914	968,318	30,639,576	60,566,252	70.2	25,759,523	15,137,686	11,877,358	15,821,788
Burlington, Rock Island	Dec.	228	91,228	62,366	166,663	49,333	30,563	4,228	74,637	175,185	105.1	—8,522	—18,969	—27,451	39,122
	12 mos.	228	1,734,906	778,331	2,684,248	336,376	250,025	34,052	975,912	1,759,848	65.6	924,400	796,441	533,501	198,121
Cambria & Indiana	Dec.														
	12 mos.														
Canadian Pacific Lines in Maine	Dec.	234	468,191	57,792	559,596	65,224	89,686	7,388	189,416	367,927	65.7	191,669	170,862	134,344	75,519
	12 mos.	234	5,349,444	801,834	6,467,429	702,473	874,266	76,243	1,895,176	3,668,443	56.7	2,798,986	2,551,914	2,168,500	1,577,310
Canadian Pacific Lines in Vermont	Dec.	90	80,702	7,285	95,969	32,336	32,409	2,688	98,119	171,723	178.9	—75,754	—87,389	—119,236	—72,471
	12 mos.	90	995,079	162,190	1,318,990	387,108	348,959	27,676	1,063,711	1,881,009	142.6	—562,019	—670,010	—1,021,061	—671,124
Central of Georgia	Dec.	1,815	2,190,990	2,099,833	4,558,529	376,853	422,318	77,391	1,131,952	2,129,490	46.7	2,429,039	—104,852	—135,245	789,433
	12 mos.	1,815	26,570,150	9,320,433	38,929,768	4,008,925	4,959,912	827,534	11,874,977	23,179,867	59.5	15,749,901	7,773,889	7,345,556	7,711,979
Central of New Jersey	Dec.	655	3,859,263	603,772	4,754,866	1,185,809	923,073	46,964	2,168,868	4,474,670	94.1	280,196	—222,517	—473,766	928,428
	12 mos.	657	51,388,420	8,025,152	62,974,869	7,755,966	10,754,850	603,356	25,406,506	46,161,089	73.3	16,813,780	8,417,553	5,190,600	9,321,852
Central Vermont	Dec.	422	632,656	86,653	793,118	106,686	101,982	3,868	307,458	549,112	69.2	244,006	194,240	117,378	173,113
	12 mos.	422	7,548,494	1,047,653	9,252,447	1,301,051	1,282,654	118,236	3,679,256	6,692,408	72.3	2,560,039	2,026,393	1,460,293	1,477,894
Chesapeake & Ohio	Dec.	3,073	15,597,465	1,878,885	18,069,802	2,825,052	4,132,618	283,976	5,643,132	13,733,203	76.0	4,336,599	2,562,166	2,945,929	5,954,245
	12 mos.	3,085	179,128,140	21,669,413	208,512,534	21,728,914	35,358,969	2,617,247	49,028,667	115,045,264	55.2	93,467,270	32,889,574	37,216,148	39,643,584
Chicago & Eastern Illinois	Dec.	912	2,086,402	633,581	2,967,484	475,240	606,498	115,777	1,292,485	2,654,585	89.5	312,899	56,399	—124,297	450,121
	12 mos.	912	23,303,170	6,554,340	32,635,256	3,678,570	4,720,058	784,447	10,735,076	21,124,893	64.7	11,510,363	6,307,163	3,397,266	3,787,932
Chicago & Illinois Midland	Dec.	131	521,482	1,424	563,909	103,690	100,994	31,572	163,208	438,374	77.7	125,535	75,849	79,194	98,703
	12 mos,	131	6,008,424	16,308	6,355,145	785,329	939,686	259,795	1,516,596	3,812,914	60.0	2,542,231	926,176	993,368	997,706
Chicago & North Western	Dec.	8,101	6,529,652	2,955,907	10,845,850	4,945,648	4,671,590	233,180	6,063,850	16,618,774	153.2	—5,772,924	3,818,835	3,814,225	1,771,301
	12 mos.	8,101	112,406,466	33,443,780	161,014,173	23,194,114	28,132,261	2,408,807	50,804,228	110,004,866	68.3	51,009,307	41,455,826	40,791,747	24,939,999
Chicago, Burlington & Quincy	Dec.	9,024	14,402,346	3,245,308	19,532,244	4,350,272	3,860,613	438,893	6,768,821	16,346,209	83.7	3,186,035	—97,311	—408,916	4,623,244
	12 mos.	9,030	166,123,159	32,923,900	217,952,483	29,835,735	28,195,666	3,300,438	55,805,743	123,559,336	56.7	94,393,147	38,819,503	35,762,487	37,173,683
Chicago Great Western	Dec.	1,500	2,188,791	217,030	2,620,291	259,275	301,937	70,001	999,542	1,715,826	65.5	904,465	367,168	180,135	599,579
	12 mos.	1,500	25,494,427	2,813,910	30,432,425	3,686,564	3,485,545	749,143	10,087,698	18,809,007	61.8	11,623,418	5,870,276	3,723,331	3,702,544
Chicago, Indianapolis & Louisville	Dec.	541	935,091	108,981	1,132,261	418,088	258,102	39,017	494,662	1,266,660	111.9	—134,399	—229,116	—275,602	74,050
	12 mos.	541	11,051,571	1,229,991	13,204,255	1,686,410	2,169,395	369,133	4,046,469	8,730,227	66.1	4,474,028	3,391,712	2,909,831	2,398,656

Chicago, Indianapolis & Louisville	Dec.	541	935,091	108,981	1,132,261	418,088	258,102	39,017	494,662	1,266,660	111.9	—134,399	—229,116	—275,602	74,050	
	12 mos.	541	11,051,571	1,229,991	13,204,255	1,686,410	2,169,395	369,133	4,046,469	8,730,227	66.1	4,474,028	3,391,712	2,909,831	2,398,656	

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1943	Net railway operating income 1942
Chicago, Milwaukee, St. Paul & Pacific	Dec.	10,742	$14,463,733	$2,646,161	$18,718,770	$8,370,036	$5,498,983	$362,243	$7,974,996	$23,226,059	124.1	—$4,507,289	—$1,398,289	—$1,440,021	3,578,786
	12 mos.	10,761	174,018,632	31,010,174	224,515,240	36,149,211	31,362,161	3,103,603	67,796,281	145,735,801	64.9	78,779,439	52,749,439	50,668,954	34,504,654
Chicago, Rock Island & Pacific	Dec.	7,751	9,898,879	3,648,586	14,789,917	2,795,119	2,723,939	432,200	5,697,327	12,465,811	84.3	2,324,106	—542,201	—836,035	2,860,827
	12 mos.	7,756	123,264,017	40,018,856	176,644,686	19,685,660	24,234,756	3,844,601	50,549,136	104,975,106	59.4	71,669,580	42,578,938	36,794,983	36,557,111
Chicago, St. Paul, Minneapolis & Omaha	Dec.	1,617	1,652,075	376,336	2,245,510	603,347	771,234	68,975	1,274,367	2,836,087	126.3	—590,577	—642,724	—701,876	217,989
	12 mos.	1,622	21,230,454	4,073,771	27,273,328	3,833,228	4,389,987	500,712	10,517,246	20,189,533	74.0	7,083,795	4,684,921	3,898,532	3,181,322
Clinchfield Railroad	Dec.	302	1,158,786	11,519	1,178,993	78,997	182,132	21,957	251,094	557,459	47.3	621,534	482,492	492,069	490,009
	12 mos.	303	12,530,440	161,601	12,796,775	1,186,191	1,970,967	259,190	2,540,717	6,201,834	48.5	6,594,941	5,045,597	5,232,725	5,832,619
Colorado & Southern	Dec.	748	808,888	306,585	1,226,356	201,755	295,141	23,981	486,237	1,089,970	88.9	136,386	190,665	132,549	249,191
Fort Worth & Denver City	12 mos.	748	9,633,547	3,385,228	14,192,749	1,818,296	2,194,409	193,988	4,222,073	9,023,802	63.6	5,168,947	3,554,563	3,182,651	2,729,605
	Dec.	804	786,469	490,193	1,379,953	241,150	193,380	36,582	401,521	939,957	68.1	439,996	273,784	297,565	306,173
	12 mos.	804	9,358,241	5,110,688	15,691,278	1,706,235	1,511,564	294,326	3,871,600	8,040,588	51.2	7,650,690	4,488,947	3,972,146	3,637,525
Colorado & Wyoming	Dec.	42	108,496	.....	170,481	Cr. 12,128	28,258	945	59,385	78,096	45.8	92,385	91,325	90,402	23,633
Columbus & Greenville	12 mos.	42	1,155,488	.....	1,792,692	171,537	177,672	10,743	669,680	1,083,708	60.4	708,984	338,762	331,342	276,738
	Dec.	168	102,766	23,294	135,015	29,506	19,674	5,058	46,501	119,003	88.1	16,012	384	—1,150	—43,168
	12 mos.	168	1,216,782	112,500	1,429,004	314,605	232,832	47,075	503,016	1,255,116	87.8	173,888	40,209	54,183	55,590
Delaware & Hudson	Dec.	848	3,513,583	158,343	3,783,365	438,622	1,166,207	55,078	1,485,790	3,270,117	86.4	513,248	1,590,919	1,646,337	1,397,103
Delaware, Lackawanna & Western	12 mos.	848	44,737,754	2,158,435	48,150,134	5,272,939	11,732,122	554,689	15,667,101	34,553,107	71.8	13,597,027	11,060,136	11,132,460	10,423,919
	Dec.	973	5,118,733	919,091	6,634,293	587,937	918,760	103,232	2,639,459	4,459,245	67.2	2,175,048	1,227,714	1,146,812	1,239,469
	12 mos.	977	62,774,426	11,246,843	81,380,395	8,454,748	11,773,220	1,385,785	32,150,519	56,009,062	68.8	25,371,333	12,642,499	11,181,280	11,648,816
Denver & Rio Grande Western	Dec.	2,399	4,903,927	698,852	5,919,616	2,307,138	3,526,830	116,779	2,015,661	8,233,469	139.1	—2,313,853	—3,039,709	—3,150,649	1,009,151
Denver & Salt Lake	12 mos.	2,404	57,596,440	9,457,265	70,194,002	7,917,772	14,310,736	1,144,982	20,385,731	46,001,500	65.5	24,192,502	13,763,467	12,050,824	17,229,206
	Dec.	232	283,318	7,054	300,143	76,705	88,340	4,062	125,035	309,845	103.2	—9,702	—20,753	14,250	128,975
	12 mos.	232	2,578,093	87,938	2,801,612	559,354	647,647	32,698	954,437	2,323,957	83.0	477,655	109,073	630,665	1,199,347
Detroit & Mackinac	Dec.	230	50,783	14,580	71,605	114,496	11,974	872	28,834	159,682	223.0	—88,077	—92,177	—92,221	35,384
Detroit & Toledo Shore Line	12 mos.	240	716,129	151,295	975,711	326,038	199,064	10,195	352,044	932,650	95.6	43,061	—37,742	—56,742	341,918
	Dec.	50	414,593	.....	416,692	42,441	24,673	11,529	120,230	206,932	49.7	209,760	98,428	32,570	37,181
	12 mos.	50	4,167,044	.....	4,183,853	425,596	293,941	112,902	1,116,916	2,047,827	48.9	2,136,026	1,306,539	681,936	731,656
Detroit, Toledo & Ironton	Dec,	464	797,852	1,604	850,541	108,151	153,314	20,785	224,631	549,498	64.6	301,043	176,718	169,989	269,290
Duluth, Missabe & Iron Range	12 mos.	464	8,788,968	16,067	9,418,104	1,120,370	1,410,022	172,272	2,200,175	5,204,885	55.3	4,213,219	2,472,409	2,458,734	2,158,996
	Dec.	544	659,560	5,709	771,680	645,586	1,152,197	6,714	700,844	2,655,391	344.1	—1,883,711	660,296	754,423	1,083,173
	12 mos.	545	36,000,694	52,153	41,785,459	4,926,069	6,236,983	53,708	8,233,007	20,048,980	48.0	21,736,479	9,245,790	9,531,111	9,174,633
Duluth, Winnipeg & Pacific	Dec.	175	306,633	2,217	315,806	33,967	30,440	2,555	65,809	136,672	43.3	179,134	156,897	127,219	43,810
Elgin, Joliet & Eastern	12 mos.	175	2,700,633	43,017	2,806,406	487,873	349,236	23,881	1,015,835	1,921,523	68.5	884,883	672,341	395,871	170,943
	Dec.	392	2,480,523	217	2,852,890	432,968	935,481	20,406	1,418,879	3,412,006	119.6	—559,116	272,400	143,378	1,036,058
	12 mos.	392	28,263,861	274	32,849,841	2,751,251	9,293,742	196,599	11,596,327	25,086,268	76.4	7,763,573	3,107,555	1,946,923	3,681,119
Erie	Dec.	2,244	10,962,254	956,122	12,664,436	1,444,458	3,326,690	239,628	4,818,325	10,268,746	81.1	2,395,690	3,062,169	2,479,811	1,701,288
Florida East Coast	12 mos.	2,243	137,269,355	11,345,392	157,893,223	15,369,513	27,141,405	2,601,149	54,173,426	104,127,772	65.9	53,765,451	26,719,487	19,807,690	24,372,832
	Dec.	682	1,416,229	939,281	2,772,565	459,303	441,696	71,919	1,048,559	2,165,715	78.1	606,850	822,986	718,241	1,709,493
	12 mos.	682	17,057,335	13,164,715	32,559,085	3,224,461	3,067,582	562,488	8,371,548	16,604,873	51.0	15,954,212	11,460,654	10,173,479	7,873,959
Georgia Railroad	Dec.	329	491,182	87,054	638,711	105,012	127,876	25,095	340,188	621,147	97.3	17,464	—14,401	18,291	417,183
Georgia & Florida	12 mos.	329	8,216,233	1,869,184	10,604,038	1,116,776	1,248,336	271,650	3,598,412	6,476,225	61.1	4,127,813	3,778,392	3,564,793	3,678,644
	Dec.	408	158,410	7,588	170,524	50,642	24,350	11,200	65,049	161,248	94.6	9,276	635	—10,194	17,074
	12 mos.	408	1,927,071	69,047	2,056,770	504,672	264,309	120,615	667,535	1,639,569	79.7	417,201	304,008	205,915	128,104
Grand Trunk Western	Dec.	1,026	2,846,804	360,606	3,462,970	421,262	480,523	26,178	1,202,693	2,241,729	64.7	1,221,241	783,891	754,936	539,658
Canadian National Lines in New England	12 mos.	1,026	29,688,804	3,529,606	35,428,970	4,656,923	5,571,161	423,097	13,030,992	24,920,780	70.3	10,508,190	6,987,058	6,712,043	5,948,489
	Dec.	172	101,056	8,347	138,757	38,209	30,476	2,550	28,420	118,171	85.2	20,586	—19,467	—50,272	—145,625
	12 mos.	172	1,349,156	114,847	1,736,757	614,368	393,669	29,843	1,025,383	2,310,679	133.0	—573,922	—837,308	—1,249,655	—1,251,168
Great Northern	Dec.	8,374	16,139,190	2,122,209	19,418,408	2,681,563	3,607,724	287,415	4,911,926	12,153,470	62.6	7,264,938	2,887,811	2,888,379	3,614,710
Green Bay & Western	12 mos.	8,210	166,429,112	18,853,552	200,573,426	28,616,041	35,530,748	3,176,345	49,779,649	122,771,867	61.2	77,801,559	29,340,489	28,562,967	39,445,076
	Dec.	234	199,065	677	203,171	77,108	39,030	7,563	69,693	208,493	102.62	5,322	26,062	1,028	17,479
	12 mos.	234	2,724,747	7,403	2,817,687	672,136	254,796	93,433	735,498	1,851,213	65.69	966,474	614,592	562,841	266,615
Gulf & Ship Island	Dec.	259	175,525	45,211	255,589	44,539	26,983	2,867	65,222	150,150	58.7	105,439	88,793	75,381	—69,241
	12 mos.	259	1,809,474	551,810	2,613,753	713,766	354,560	34,353	1,017,017	2,231,186	85.4	382,567	151,171	—35,581	262,705

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1943	1942
Gulf, Mobile & Ohio	Dec.	1,973	$2,808,270	$225,954	$3,137,569	$631,137	$823,120	$161,964	$1,258,201	$3,110,681	99.1	$26,888	$1,536,692	$1,372,103	$649,462
	12 mos.	1,972	34,039,146	2,700,899	37,858,695	5,866,663	6,010,379	1,060,647	10,298,459	24,720,015	65.3	13,138,680	8,119,474	5,918,935	5,648,668
Illinois Central	Dec.	4,823	15,783,089	3,313,718	20,164,132	1,856,064	3,447,609	231,831	3,979,919	10,169,390	50.4	9,994,742	4,534,506	4,300,279	6,738,298
	12 mos.	4,826	166,995,261	33,917,361	213,010,308	30,817,311	38,564,946	2,529,531	58,340,706	137,145,462	64.4	75,864,846	38,195,785	33,867,434	30,385,730
Yazoo & Mississippi Valley	Dec.	1,524	204,144	493,887	904,692	496,768	398,140	45,462	778,569	1,828,829	202.1	—924,137	—717,341	—829,935	—1,563,029
	12 mos.	1,524	28,350,276	4,455,728	34,627,272	5,230,689	4,632,452	494,268	11,132,902	22,644,768	65.4	11,982,504	6,159,226	4,354,593	10,572,126
Illinois Central System	Dec.	6,347	15,987,233	3,807,605	21,068,824	2,352,832	3,845,749	277,293	4,758,488	11,998,219	56.9	9,070,605	3,810,678	3,476,231	5,183,291
	12 mos,	6,350	195,345,537	38,373,089	247,637,580	36,048,000	43,197,398	3,023,799	69,473,608	159,790,230	64.5	87,847,350	44,302,582	38,260,956	41,007,920
Illinois Terminal	Dec.	476	672,777	174,451	925,381	162,847	135,738	27,224	313,993	688,361	74.39	237,020	130,576	109,871	417,759
	12 mos.	476	6,967,102	2,094,780	9,970,868	1,163,894	1,024,737	229,966	2,961,185	5,683,187	57.00	4,287,681	1,725,262	1,530,310	2,068,328
Kansas City Southern	Dec.	878	2,787,498	312,928	3,314,932	352,903	533,057	73,998	1,270,244	2,378,038	71.7	936,894	389,124	149,839	—245,638
	12 mos.	878	36,271,811	4,444,565	43,219,033	7,046,018	5,770,071	734,871	11,081,531	26,054,070	60.3	17,164,963	8,151,193	4,989,139	4,729,810
Kansas, Oklahoma & Gulf	Dec.	328	321,481	1,578	326,151	20,239	18,803	12,432	80,617	147,009	45.1	179,142	206,386	186,238	94,602
	12 mos.	328	3,950,676	16,712	4,006,760	666,757	227,896	122,933	957,611	2,111,528	52.7	1,895,232	1,314,792	983,111	816,734
Lake Superior & Ishpeming	Dec.	156	39,687	130	46,253	51,206	55,996	509	66,401	191,714	414.5	—145,461	—161,807	—155,683	—91,028
	12 mos.	156	2,222,101	2,144	2,960,175	429,919	482,508	7,230	651,752	1,675,813	56.6	1,284,362	575,405	670,998	865,725
Lehigh & Hudson River	Dec.	96	231,870	.....	232,676	43,137	30,160	4,845	82,264	167,704	72.1	64,972	32,992	17,770	42,392
	12 mos.	96	3,029,157	4,383	3,043,477	551,567	365,299	54,368	866,173	1,923,090	63.2	1,120,387	522,543	284,349	453,986
Lehigh & New England	Dec.	190	476,450	.....	483,725	76,652	139,014	10,440	168,372	418,611	86.5	65,114	510,700	519,274	158,506
	12 mos.	190	5,997,349	.....	6,039,139	571,280	1,353,447	86,292	1,756,952	3,991,928	66.1	2,047,211	1,505,551	1,726,011	1,475,561
Lehigh Valley*	Dec.	1,260	6,117,372	735,227	7,264,668	868,310	1,191,760	100,919	3,022,492	5,394,970	74.3	1,869,698	1,660,407	1,263,992	1,485,991
	12 mos.	1,260	78,123,467	7,428,404	91,024,875	10,772,656	14,765,048	1,367,717	31,841,296	61,161,300	67.2	29,863,575	18,190,395	13,477,689	13,117,576
Louisiana & Arkansas	Dec.	837	1,440,892	157,192	1,662,122	1,324,336	163,917	39,991	445,484	2,056,169	123.7	—394,047	296,387	229,517	324,196
	12 mos.	853	17,435,759	1,620,781	19,764,534	5,397,533	2,117,870	390,683	4,238,326	12,893,061	65.2	6,871,473	3,066,785	2,230,217	2,475,312
Louisville & Nashville	Dec.	4,745	12,520,926	4,238,428	18,301,133	1,589,495	2,950,286	237,155	5,487,460	10,836,792	59.2	7,464,341	1,312,921	1,535,258	860,830
	12 mos.	4,745	151,547,292	45,822,826	208,799,302	19,380,574	31,777,730	2,513,274	58,211,398	118,152,434	56.6	90,646,868	22,694,732	25,513,401	23,732,085
Maine Central	Dec.	991	1,167,163	321,625	1,611,759	471,024	322,659	14,390	598,844	1,455,739	90.3	156,020	144,134	88,294	445,028
	12 mos.	991	13,902,736	3,581,808	18,844,730	3,238,118	3,269,834	154,602	6,454,355	13,672,942	72.6	5,171,788	2,657,739	2,346,408	3,039,819
Midland Valley	Dec,	334	159,037	7	161,079	26,886	13,631	3,159	66,636	117,043	72.7	44,036	89,397	82,005	35,115
	12 mos.	350	1,754,841	1,924	1,789,792	331,454	163,251	27,540	532,972	1,117,480	62.4	672,312	518,801	412,936	380,886
Minneapolis & St. Louis	Dec.	1,408	1,147,054	34,712	1,228,230	178,045	182,829	72,496	409,102	903,495	73.6	324,735	166,352	157,127	398,021
	12 mos.	1,408	13,885,189	402,316	14,821,908	2,215,926	2,084,277	748,906	4,491,938	10,125,966	68.3	4,695,942	3,684,936	3,478,557	3,129,233
Minneapolis, St. Paul & Sault Ste. Marie	Dec.	4,277	3,764,617	240,902	4,265,464	1,271,626	1,113,839	102,204	1,958,236	4,635,788	108.7	—370,324	—877,846	—880,090	696,248
	12 mos.	4,277	42,113,499	2,868,638	48,256,310	7,588,783	7,849,861	872,164	17,042,517	34,788,135	72.1	13,468,175	8,608,738	8,398,092	7,871,134
Duluth, South Shore & Atlantic	Dec.	551	279,975	17,659	320,758	98,669	78,225	10,698	151,711	348,149	108.5	—27,391	—54,431	—54,145	69,936
	12 mos.	551	3,720,050	320,543	4,352,096	750,182	611,009	93,332	1,512,775	3,054,511	70.2	1,297,585	1,052,646	1,000,744	946,969
Spokane International	Dec.	152	177,701	8,495	195,345	61,449	24,637	3,871	55,155	151,466	77.5	43,879	72,881	64,034	2,027
	12 mos.	152	1,814,856	96,212	2,009,205	481,297	125,164	39,487	505,520	1,217,615	60.6	791,590	432,272	332,495	381,784
Mississippi Central	Dec.	158	147,815	9,318	159,631	23,800	13,416	7,988	39,386	90,437	56.7	69,194	45,771	34,047	56,304
	12 mos.	158	1,661,500	70,062	1,764,115	323,635	179,519	100,760	413,810	1,087,274	61.6	676,841	428,887	324,732	397,262
Missouri & Arkansas	Dec.	365	172,222	3,978	184,686	50,333	22,297	7,606	69,255	155,900	84.4	28,786	24,478	8,661	1,711
	12 mos.	365	2,041,509	44,045	2,178,125	672,367	252,704	90,556	773,279	1,868,617	85.8	309,508	217,630	34,649	51,510
Missouri-Illinois	Dec.	172	279,486	688	281,560	58,539	26,275	3,633	65,426	161,145	57.2	120,415	64,757	55,649	24,745
	12 mos.	172	3,212,305	7,930	3,240,261	503,538	375,372	40,550	765,481	1,762,411	54.4	1,477,850	566,322	449,727	550,984
Missouri-Kansas-Texas Lines	Dec.	3,293	5,907,929	1,253,364	7,713,668	2,954,275	1,064,436	193,989	2,500,052	7,045,653	91.3	668,015	495,695	99,791	1,231,745
	12 mos.	3,293	59,218,281	14,125,673	79,024,587	19,027,170	9,667,577	1,563,092	22,588,564	55,536,441	70.3	23,488,146	14,627,514	9,227,193	10,471,483
Missouri Pacific	Dec.	7,097	15,262,414	3,678,784	21,020,276	2,775,144	2,577,042	280,418	5,570,197	11,766,946	56.0	9,253,330	—1,046,167	—1,848,388	3,958,066
	12 mos.	7,096	174,563,089	37,889,931	227,793,238	25,260,359	28,838,152	3,420,942	60,574,568	124,135,468	54.5	103,657,770	44,933,715	34,574,379	49,309,302
Gulf Coast Lines	Dec.	1,734	4,129,187	446,676	4,735,224	666,004	351,506	53,765	992,582	2,152,450	45.46	2,582,774	371,214	720,930	641,734
	12 mos.	1,734	37,762,499	4,169,028	43,564,237	5,670,818	3,723,023	623,984	9,891,656	20,936,844	48.07	22,627,393	8,360,575	5,152,326	8,920,952
International Great Northern	Dec.	1,155	1,745,310	503,287	2,480,794	495,870	340,269	35,068	825,558	1,799,784	72.5	681,010	1,220,421	1,082,657	812,688
	12 mos.	1,155	21,332,511	5,649,998	29,595,900	4,741,657	3,659,136	406,498	8,807,582	18,714,677	63.2	10,881,223	6,652,351	4,921,149	5,786,908
Monongahela	Dec.	171	528,741	2,813	533,694	76,303	46,610	735	156,288	283,288	53.1	250,406	316,943	232,951	71,175
	12 mos,	171	6,445,396	24,832	6,501,309	786,671	551,004	8,717	1,601,787	2,988,906	46.0	3,512,403	2,224,961	1,234,482	1,504,772

* In the November Revenues and Expenses' table, appearing on page 184, of the January 8 issue, it was incorrectly reported that total operating revenues for 11 months for the Lehigh Valley amounted to 63,760,207. The figure should read 83,760,207.

Table continued on next left-hand page

HSGI Wear Resisting PARTS

Reduce Operating Costs

LOCOMOTIVES equipped with HUNT-SPILLER *Air Furnace* GUN IRON wear-resisting parts cost less to operate and maintain.

Performance records show high availability, low fuel consumption and minimum roundhouse attention.

Every officer and supervisor in the mechanical department strives to operate and maintain power at a minimum cost—this fact explains the reason why the majority of locomotives are equipped with HSGI wear-resisting parts.

HSGI
Reg. U. S. Trade Mark
Cylinder Bushings
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Pistons or Piston Bull Rings
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Valve Bull Rings
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Hub Liners
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Floating Rod Bushings

Finished Parts
Dunbar Sectional Type Packing
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for Cylinders and Valves
(Duplex Springs for Above
Sectional Packing)
Cylinder Snap Rings
Valve Rings, All Shapes
Light Weight Valves
Cylinder Liners and Pistons
for Diesel Service

HUNT SPILLER MFG. CORPORATION
V. W. Ellet, *President* **E. J. Fuller, *Vice-Pres. & Gen. Mgr.***

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HUNT-SPILLER GUN IRON
Air Furnace

* In the November Revenues and Expenses' table, appearing on page 184, of the January 8 issue, it was incorrectly reported that total operating revenues for 11 months for the Lehigh Valley amounted to 63,760,207. The figure should read 83,760,207.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1943	Net railway operating income 1942
Montour	Dec.	51	$229,351	.....	$231,153	$22,209	$107,284	$1,444	$93,653	$235,639	101.9	—$4,486	—$40,051	—$9,315	$50,744
	12 mos.	51	2,846,397	.....	2,865,049	204,781	835,586	12,077	783,793	1,936,355	67.6	928,694	222,276	674,685	819,091
Nashville, Chattanooga & St. Louis	Dec.	1,072	2,610,639	$716,621	3,698,519	337,052	642,850	88,629	1,014,251	2,191,708	59.3	1,506,811	598,384	586,072	586,749
	12 mos.	1,085	30,580,407	8,800,388	42,284,020	5,094,371	6,955,499	1,019,798	12,153,002	26,459,060	62.6	15,824,960	5,910,652	5,083,496	5,702,913
Nevada Northern	Dec.	165	51,748	963	55,502	10,294	2,854	1,208	9,134	28,092	50.6	27,410	10,898	13,361	16,772
	12 mos.	165	626,698	14,057	673,589	138,009	41,088	14,070	113,168	354,193	52.9	319,396	144,905	173,650	169,613
New York Central	Dec.	10,747	38,980,389	14,112,425	57,903,409	9,154,010	11,506,591	702,078	21,630,964	45,291,955	78.2	12,611,454	9,569,948	8,100,613	11,132,230
	12 mos.	10,782	480,665,605	162,017,837	706,124,833	89,735,382	120,551,471	7,987,109	234,597,870	477,337,099	67.6	228,787,734	106,767,566	88,539,974	90,399,495
Pittsburgh & Lake Erie	Dec.	229	2,452,594	104,320	2,647,109	577,030	1,047,151	44,170	835,537	2,606,149	98.5	40,960	—159,087	326,148	1,303,962
	12 mos.	231	32,434,581	1,311,975	34,809,042	4,047,511	10,711,228	496,364	10,099,269	26,581,235	76.4	8,227,807	—337,741	5,873,225	7,378,279
New York, Chicago & St. Louis	Dec.	1,688	7,526,066	312,887	7,991,340	702,309	1,543,979	193,445	3,101,340	5,842,817	73.1	2,148,523	1,101,536	712,659	206,845
	12 mos.	1,688	94,975,099	3,391,892	100,093,565	8,404,378	13,381,879	1,608,606	28,838,778	54,585,505	54.5	45,508,060	18,944,040	13,265,201	13,222,981
New York, New Haven & Hartford	Dec.	1,838	7,740,083	6,162,726	15,079,403	1,858,168	2,029,927	178,099	5,068,344	9,722,790	64.5	5,356,613	2,878,795	1,844,761	2,888,024
	12 mos.	1,838	94,195,623	71,709,875	179,548,274	20,257,998	23,570,527	1,766,599	55,279,771	108,153,922	60.2	71,394,352	44,846,911	32,745,190	30,012,844
New York Connecting	Dec.	21	214,132	.....	232,071	76,614	10,267	.....	44,521	132,941	57.3	99,130	98,698	227,719	68,014
	12 mos.	21	2,471,788	.....	2,731,381	902,216	149,365	.....	524,760	1,596,305	58.4	1,135,076	181,172	1,499,935	1,690,031
New York, Ontario & Western	Dec.	546	568,025	22,942	655,855	73,614	128,097	22,179	377,005	626,724	95.6	29,131	—36,602	—79,062	—22,146
	12 mos.	546	7,203,947	833,725	8,686,801	1,100,102	1,678,321	264,508	4,149,364	7,565,319	87.1	1,121,482	662,093	209,091	200,030
New York, Susquehanna & Western	Dec.	120	440,247	31,709	486,981	25,281	32,174	4,280	184,148	263,969	54.2	223,012	155,729	98,664	90,099
	12 mos.	120	5,102,921	447,484	5,793,870	410,870	465,512	51,322	2,013,825	3,131,287	54.0	2,662,582	1,855,193	1,089,269	916,410
Norfolk & Western	Dec.	2,154	11,528,219	1,428,386	13,364,684	1,047,020	2,203,472	166,856	2,666,519	6,369,244	47.7	6,995,440	2,396,401	2,994,371	2,515,449
	12 mos.	2,155	129,784,199	15,794,569	150,164,921	14,682,356	30,042,809	2,076,847	34,029,543	84,395,641	56.2	65,769,280	16,571,062	24,908,875	23,829,764
Norfolk Southern	Dec.	728	607,707	33,047	660,549	149,250	141,698	53,905	320,082	723,880	109.6	—63,332	—74,545	—105,800	5,513
	12 mos.	734	7,782,778	339,946	8,377,575	1,781,686	991,295	379,092	2,674,774	6,181,654	73.8	2,195,921	1,297,104	943,296	1,196,204
Northern Pacific	Dec.	6,867	12,016,310	2,514,255	16,195,429	1,435,703	1,818,901	171,307	3,334,203	7,234,713	44.7	8,960,716	3,885,346	4,476,264	2,508,663
	12 mos.	6,868	119,842,721	18,780,575	151,531,731	19,007,449	24,910,429	2,151,585	40,092,277	92,136,021	60.8	59,395,710	31,791,484	36,423,456	27,463,103
Northwestern Pacific	Dec.	331	467,559	18,965	505,999	349,918	102,808	3,746	213,321	676,988	133.8	—170,989	—196,444	—215,013	134,444
	12 mos.	331	5,747,947	178,073	6,170,663	2,191,593	707,022	32,360	1,975,140	4,987,939	80.8	1,182,724	897,084	574,802	1,038,295
Oklahoma City-Ada-Atoka	Dec.	132	128,711	132	129,988	14,399	—8,329	1,510	34,495	48,429	37.3	81,559	92,097	81,796	14,389
	12 mos.	132	1,547,751	2,096	1,578,898	222,157	42,187	14,190	375,891	708,422	44.9	870,476	576,096	390,313	302,414
Pennsylvania	Dec.	10,133	54,649,126	23,014,940	83,985,723	11,017,268	13,455,536	1,005,328	30,283,846	58,848,776	70.1	25,136,947	14,496,928	14,007,765	14,295,332
	12 mos.	10,169	658,767,266	245,537,445	979,773,155	108,488,084	163,610,738	11,492,625	348,985,288	663,510,711	67.7	316,262,444	135,856,953	127,546,411	145,278,344
Long Island	Dec.	376	995,794	1,963,823	3,110,083	436,300	486,487	9,320	1,590,852	2,580,702	83.0	529,381	96,978	—124,495	—27,324
	12 mos.	378	13,455,824	27,648,959	42,977,728	6,442,546	5,810,066	306,637	17,667,854	30,906,085	71.9	12,071,643	6,323,773	3,736,092	2,002,737
Pennsylvania-Reading Seashore Lines	Dec,	392	451,903	204,705	691,471	185,054	65,752	5,997	437,466	719,569	104.1	—28,098	—86,343	—194,492	—38,468
	12 mos.	395	5,884,648	5,977,598	12,276,737	2,192,540	1,165,881	105,033	5,314,413	9,035,958	73.6	3,240,779	2,216,317	843,339	—204,517
Pere Marquette	Dec.	1,979	4,153,416	284,802	4,633,090	1,197,834	961,862	96,249	2,016,978	4,459,648	96.3	173,442	303,200	203,193	698,658
	12 mos.	2,007	48,825,731	3,684,738	55,052,804	8,647,832	9,453,289	836,109	18,423,801	39,197,743	71.2	15,855,061	7,242,720	6,003,088	6,275,279
Pittsburg & Shawmut	Dec.	97	151,534	.....	151,747	48,946	37,292	2,331	48,830	144,628	95.3	7,119	10,003	7,273	31,675
	12 mos.	97	1,502,441	.....	1,506,108	346,325	261,428	23,752	395,227	1,088,992	72.3	417,116	265,439	234,303	329,087
Pittsburgh & West Virginia	Dec.	136	546,980	.....	564,972	168,498	188,184	25,347	192,690	626,008	110.8	—61,036	185,002	215,686	170,359
	12 mos.	136	7,497,407	166	7,722,212	1,259,060	1,443,956	238,711	1,969,531	5,237,595	67.8	2,484,617	1,785,100	1,883,294	1,787,586
Pittsburg, Shawmut & Northern	Dec.	190	104,095	.....	106,591	20,504	14,986	953	45,577	87,331	81.9	19,260	14,451	8,118	13,566
	12 mos.	190	1,433,167	.....	1,454,553	267,000	261,220	12,213	543,943	1,152,338	79.2	302,215	226,993	139,283	106,593
Reading	Dec.	1,417	8,001,146	845,268	9,337,908	970,084	1,607,214	66,475	3,034,697	5,867,671	62.8	3,470,237	2,273,398	2,035,474	2,065,142
	12 mos.	1,418	98,386,951	10,068,124	113,784,670	12,008,726	21,524,007	918,566	36,916,681	73,679,210	64.8	40,105,460	19,483,152	17,924,982	21,721,740
Richmond, Fredericksburg & Potomac	Dec.	118	1,317,523	1,732,285	3,575,412	258,893	335,708	16,807	1,145,059	1,877,657	52.5	1,697,755	1,799,986	1,663,581	1,192,372
	12 mos.	118	18,143,998	16,212,941	37,407,536	2,246,010	3,327,435	161,221	9,051,128	15,974,022	42.7	21,433,514	7,113,602	5,203,854	4,008,903
Rutland	Dec.	407	257,716	53,362	382,074	58,918	90,080	12,484	196,122	366,769	96.0	15,305	—10,886	—10,689	34,026
	12 mos.	407	3,152,285	746,424	4,710,907	650,100	924,786	138,947	2,270,603	4,144,474	88.0	566,433	273,853	326,949	595,350
St. Louis-San Francisco	Dec.	4,666	6,300,217	2,021,259	9,475,434	850,547	1,693,257	184,426	3,311,721	6,412,406	67.7	3,063,028	1,908,728	1,911,061	3,155,203
	12 mos.	4,667	76,591,106	22,895,783	107,426,855	12,082,474	19,055,431	1,886,853	34,173,095	71,055,391	66.1	36,371,464	23,111,790	22,488,529	25,874,296
St. Louis, San Francisco & Texas	Dec.	159	407,992	24,884	443,428	40,781	31,286	11,028	114,214	204,978	46.2	238,450	145,013	122,647	—120,718
	12 mos.	159	4,008,132	275,176	4,374,576	426,871	342,813	118,527	1,154,092	2,121,978	48.5	2,252,598	1,386,762	1,097,518	923,696

Table continued on next left-hand page

★ "Piston-Packin' Papas" . . . that's what they're calling P-M service engineers these days. The nickname fits, too, for their thorough training and years of experience in contact with every type of operating condition have enabled them to acquire a great wealth of information about packing problems. P-M service engineers are ready to share their knowledge with you. You will find they have a keen understanding of operating conditions and can undoubtedly offer a suggestion that will help you eliminate *your* packing problems. They will also instruct your personnel in the proper installation and maintenance of P-M packing.

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Export Department
INTERNATIONAL RAILWAY SUPPLY COMPANY
30 Church Street — New York 7, New York

The Packing that Packs P-M *Metallic Packing*

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF DECEMBER AND TWELVE MONTHS OF CALENDAR YEAR 1943—CONTINUED

Name of road		Av. mileage operated during period	Operating revenues: Freight	Passenger	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures	Maintenance of Equipment	Traffic	Transportation	Total	Operating ratio	Net from railway operation	Operating income	Net railway operating income 1943	1942
St. Louis Southwestern Lines	Dec.	1,607	$5,297,844	$456,724	$5,889,597	$732,098	$906,001	$182,439	$1,748,426	$3,784,751	64.3	$2,104,846	$857,322	$563,327	$670,354
	12 mos.	1,612	58,968,245	3,874,724	64,378,914	5,266,645	6,357,555	1,270,957	15,520,517	29,895,565	46.4	34,483,349	14,481,525	10,677,148	8,615,365
Seaboard Air Line	Dec,	4,178	7,566,203	3,441,865	11,781,618	2,906,431	2,487,493	355,859	4,958,436	11,464,470	97.3	317,148	—1,679,643	—2,231,313	6,629,619
	12 mos.	4,179	88,381,324	39,996,289	137,257,803	15,485,832	18,195,593	2,783,487	38,862,221	80,823,710	58.9	56,434,093	34,247,302	28,704,006	33,945,971
Southern Railway	Dec.	6,513	14,809,370	5,098,534	22,171,107	4,487,110	5,000,477	467,119	6,606,514	17,923,069	80.8	4,248,038	2,598,318	2,342,548	7,690,300
	12 mos.	6,514	172,799,049	57,660,240	245,532,051	26,916,811	37,125,333	2,749,396	62,008,204	136,604,153	55.6	108,927,898	38,490,662	35,744,757	46,265,818
Alabama Great Southern	Dec.	315	1,446,789	422,671	2,022,981	153,588	444,429	58,314	612,904	1,333,753	65.9	689,228	307,144	224,411	481,625
	12 mos.	315	17,453,890	4,950,412	23,537,962	1,710,662	3,403,187	336,425	6,174,867	12,254,362	52.1	11,283,600	3,957,751	3,000,736	2,409,124
Cincinnati, New Orleans & Texas Pacific	Dec.	337	2,526,875	956,666	3,752,754	93,942	1,011,768	87,536	796,069	2,147,953	57.2	1,604,801	658,565	671,148	703,613
	12 mos.	337	28,214,694	7,214,354	37,213,864	2,826,881	7,017,474	481,819	8,380,021	19,763,905	53.1	17,449,959	6,510,753	6,440,820	5,222,964
Georgia Southern & Florida	Dec.	397	291,928	205,873	599,271	43,022	76,658	2,716	205,248	360,972	60.2	238,299	202,920	165,037	139,630
	12 mos.	397	4,165,690	2,555,495	7,353,434	815,086	718,802	29,432	2,068,943	3,833,717	52.1	3,519,717	1,601,337	1,189,382	995,800
New Orleans & Northeastern	Dec.	204	908,431	190,186	1,171,166	27,057	281,382	30,855	356,925	757,823	64.7	413,343	243,772	136,788	158,937
	12 mos.	204	11,297,151	2,609,157	14,521,232	1,114,999	1,574,094	173,185	3,492,642	6,783,905	46.7	7,737,327	2,812,602,	1,709,465	1,413,965
Southern Pacific	Dec.	8,263	26,454,565	10,579,882	40,305,631	9,614,122	10,032,648	826,184	15,147,604	38,456,040	95.4	1,849,591	784,786	—666,322	9,696,065
	12 mos.	8,309	328,341,829	98,836,662	465,362,718	61,537,594	75,496,259	6,509,408	134,093,919	300,631,917	64.6	164,730,801	70,163,895	52,756,188	76,932,583
Texas & New Orleans	Dec.	4,341	8,104,459	2,081,740	10,863,848	2,710,636	1,717,629	183,658	3,744,595	8,879,145	81.7	1,984,703	1,981,192	1,426,396	3,465,370
	12 mos.	4,341	99,228,740	25,409,804	132,010,553	14,839,773	15,188,364	1,723,850	32,703,829	68,564,232	51,9	63,446,321	31,294,110	24,506,126	25,672,343
Spokane, Portland & Seattle	Dec.	930	1,762,993	263,704	2,131,123	1,034,999	272,906	19,676	818,613	2,240,302	105.1	—109,179	—39,582	—258,922	348,225
	12 mos,	930	20,203,272	2,229,857	23,906,149	4,039,179	1,745,614	154,861	7,239,962	13,885,200	58.1	10,020,949	7,060,581	4,659,898	6,851,890
Tennessee Central	Dec.	286	313,079	48,402	380,464	145,404	91,001	9,318	162,219	433,079	113.8	—52,615	—38,552	—53,796	32,438
	12 mos.	286	3,964,693	639,642	4,841,515	1,013,616	675,177	85,198	1,449,333	3,435,703	71.0	1,405,812	880,319	712,258	489,323
Texas & Pacific	Dec.	1,884	4,135,208	1,731,555	6,602,212	877,813	986,122	110,441	1,605,209	3,838,324	58.1	2,763,888	717,966	680,558	1,498,384
	12 mos.	1,890	43,969,249	20,192,261	70,667,645	9,058,288	10,781,583	1,245,593	16,778,499	40,812,687	57.8	29,854,958	10,142,786	9,244,887	12,401,106
Texas Mexican	Dec.	162	152,127	1,402	175,949	49,224	24,944	4,052	44,333	131,445	74.7	44,504	29,786	20,497	18,092
	12 mos.	162	173,178	12,527	2,026,168	326,874	172,673	46,345	494,086	1,152,965	56.9	873,203	651,844	540,093	455,429
Toledo, Peoria & Western	Dec.	239	422,895	19	425,585	26,207	24,034	28,177	119,299	222,307	52.2	203,278	189,393	170,031	163,717
	12 mos.	239	4,771,075	524	4,819,169	463,035	232,607	287,628	952,298	2,108,735	43.8	2,710,434	2,553,721	2,343,144	1,033,024
Union Pacific System	Dec.	9,782	34,343,842	7,314,852	45,226,499	5,935,560	8,064,221	513,261	11,953,715	28,192,982	62.3	17,033,517	4,230,585	3,319,008	10,626,851
	12 mos.	9,816	357,590,629	86,742,472	480,274,934	66,153,251	82,040,969	5,737,896	125,863,402	300,074,772	62.5	180,200,162	54,137,017	41,205,855	61,024,720
Utah	Dec.	111	141,735	.....	141,747	10,408	50,398	471	39,421	105,677	74.6	36,070	17,483	17,647	42,834
	12 mos.	111	1,430,519	.....	1,430,769	165,692	501,439	5,322	388,310	1,114,277	77.9	316,492	168,177	145,473	198,405
Virginian	Dec.	657	2,561,753	10,706	2,640,762	241,810	562,383	23,362	524,029	1,408,715	53.3	1,232,047	592,047	634,013	569,947
	12 mos.	657	26,286,274	111,200	27,300,864	2,734,573	5,937,017	298,858	5,140,809	14,739,994	54.0	12,560,870	6,160,870	7,487,223	7,369,757
Wabash	Dec.	2,393	6,576,486	908,503	7,971,040	1,151,917	656,194	177,705	1,947,426	4,200,327	52.7	3,770,713	1,160,295	999,496	2,251,674
	12 mos.	2,393	80,067,520	10,399,942	95,520,547	10,584,039	10,718,691	2,104,848	27,969,908	54,355,860	56.9	41,164,687	16,669,314	11,777,668	11,051,645
Ann Arbor	Dec.	294	505,847	8,447	528,385	44,736	62,754	14,389	185,285	317,700	60,1	210,685	64,290	59,475	130,208
	12 mos.	294	5,749,056	115,752	6,036,887	600,630	953,939	193,107	2,317,287	4,208,373	69.7	1,828,514	840,114	773,990	599,894
Western Maryland	Dec.	840	2,798,575	32,269	2,907,868	484,798	828,155	57,991	1,011,126	2,510,266	86.3	397,602	212,484	242,068	797,337
	12 mos.	842	33,326,080	370,087	34,706,316	4,563,122	7,023,111	524,277	8,898,652	21,956,062	63.3	12,750,254	7,227,136	7,464,076	7,311,848
Western Pacific	Dec.	1,195	3,998,326	502,895	4,632,710	1,158,723	911,749	86,945	1,192,276	3,494,788	75.4	1,137,922	7,724,814	7,601,820	—567,311
	12 mos.	1,195	43,227,224	5,470,131	50,360,509	5,798,807	6,053,104	961,183	13,458,621	27,814,665	55.2	22,545,844	20,299,142	18,431,417	9,108,052
Wheeling & Lake Erie	Dec.	507	1,720,345	.....	1,766,159	178,150	312,861	35,322	551,057	1,140,385	64.6	625,774	22,888	193,107	651,782
	12 mos.	507	25,103,579	52	26,128,224	2,725,648	4,538,116	482,501	7,348,446	15,704,291	60.1	10,423,933	1,934,683	3,744,662	3,781,160